



## HP Pavilion x360 Convertible

Maintenance and Service Guide

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## **Product notice**


This guide describes features that are common to most models. Some features may not be available on your computer.

Not all features are available on all editions of Windows 8. This computer may require upgraded and/or separately purchased hardware, drivers, and/or software to take full advantage of Windows 8 functionality. See <http://www.microsoft.com> for details.

This computer may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See <http://windows.microsoft.com/en-us/windows7/get-know-windows-7> for details.

## Safety warning notice

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 **WARNING!** To reduce the possibility of heat-related injuries or of overheating the device, do not place the device directly on your lap or obstruct the device air vents. Use the device only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The device and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

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# 1 Product description

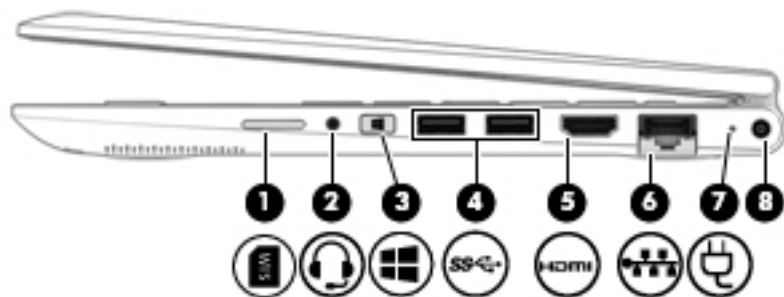
Category	Description
Product Name	HP Pavilion x360 Convertible
Processor	Intel® Core™ M-5Y10c processor (0.8 GHz, turbo up to 2.0GHz, 4 MB L3, 1600 MHz), dual core Intel Pentium N3700 processor (1.6 GHz, turbo up to 2.4 GHz, 2 MB L2, 1600 MHz), quad core Intel Celeron N3050 processor (1.6 GHz, turbo up to 2.16 GHz, 2 MB L2, 1600 MHz), dual core
Chipset	Intel Wildcat Point-LP PCH Integrated SoC PCH
Graphics	<b>Internal graphics:</b> Intel HD Graphics 5300 (Intel Core™ processors) Intel HD Graphics (Intel Pentium and Celeron processors) Support for HD decode, HDMI, and DX11.1
Panel	11.6-in [29.5-cm] (1366×768), high-definition (HD), white light emitting diode (WLED), SVA, AntiGlare, 16:9 ultra-wide aspect ratio; typical brightness: 220 nits; flat (3.6-mm)  11.6-in [29.5-cm] (1366×768), high-definition (HD), white light emitting diode (WLED), IPS/UVWA, eDP, AntiGlare, 16:9 ultra-wide aspect ratio; typical brightness: 220 nits; slim (3.0-mm)  Touch solution with flush glass, multitouch enable  Supports low-voltage differential signaling (LVDS) (co-layout with eDP1.3)
Memory	<b>On-board system memory + one SODIMM slot (not customer accessible)</b> (only for models with Intel Pentium and Celeron processors)  DDR3L-1600 single channel support  Supports up to 2 GB maximum on-board system memory  Supports up to 8 GB maximum system memory  <b>On-board system memory</b>  DDR3L-1600 dual channel support  Supports up to 8 GB onboard system memory
Storage	<b>Support for 6.35-cm (2.5-in) hard drives in 7.0-mm/7.2-mm (.28-in) thickness</b>  Support for Accelerometer hard drive protection  <b>Single HDD / Hybrid HDD configurations</b> <ul style="list-style-type: none"><li>• 1-TB, 5400-rpm, 7.2-mm</li><li>• 500-GB, 5400-rpm, 7.2-mm</li><li>• 500-GB, 5400-rpm + 8 GB NAND Hybrid, 7.0-mm</li></ul> <b>Single SSD configurations (TLC)</b>  Support for M.2 SATA SSD as storage <ul style="list-style-type: none"><li>• 128 GB M.2 SATA</li></ul>





Category	Description
<b>Optical drive</b>	Support for external 9.5 mm tray load, SATA, DVD+/-RW DL SuperMulti drive only
<b>Audio and video</b>	<p>Integrated HP TrueVision camera: HD (1280×720 by 30 frames per second), fixed (no tilt), with activity light</p> <p>Dual array Digital Microphones w/ appropriate software – beam forming, echo cancellation, noise suppression</p> <p>Dual speakers</p> <p>B&amp;O Play</p>
<b>Ethernet</b>	<p>Integrated 10/100 network interface card (NIC)</p> <p>Co-layout with Giga-LAN</p>
<b>Sensor</b>	<p>Sensor Hub</p> <p>Accelerometer + Gyroscope + e-Compass</p> <p>Accelerometer IC x2</p> <p>TPM IC</p>
<b>Wireless</b>	<p><b>Integrated wireless options with single antenna (M.2/PCIe):</b></p> <ul style="list-style-type: none"> <li>Realtek RTL8723BE 802.11b/g/n 1x1 Wi-Fi + BT4.0 Combo Adapter</li> <li>Broadcom BCM43142 802.11 b/g/n 1x1 Wi-Fi + BT4.0 M.2 Combo Adapter</li> </ul> <p><b>Integrated wireless options with dual antenna (M.2/PCIe):</b></p> <ul style="list-style-type: none"> <li>Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter</li> </ul> <p>Intel WiDi support</p> <p>Compatible with Miracast-certified devices</p>
<b>External media cards</b>	HP Multi-Format Digital Media Card Reader with push-push technology. Supports SD/SDHC/SDXC.
<b>Internal card expansion</b>	<p>One M.2 slot for SSD</p> <p>One M.2 slot for WLAN</p>
<b>Ports</b>	<p>AC Smart Pin adapter plug</p> <p>Headphone / Microphone Combo Jack</p> <p>HDMI: v. 1.4, supporting up to 2560×1600 at 60 Hz</p> <p>RJ-45/Ethernet</p> <p>(2) USB 3.0</p> <p>(1) USB 2.0</p> <p>VGA (Dsub 15-pin), hot plug/unplug and auto-detection for correct output to wide-aspect vs. standard aspect video</p>
<b>Keyboard/pointing devices</b>	<p>Full size, textured island-style keyboard</p> <p>Stylus writing support</p> <p><b>ClickPad requirements:</b></p> <p>Taps enabled as default</p> <p>Multitouch gestures enabled: 2-finger scroll, pinch</p> <p>Support for Windows 8 Modern TouchPad Gestures</p>
<b>Power requirements</b>	Support for the following AC adapters:



Category	Description
	<ul style="list-style-type: none"> <li>45-W HP Smart AC adapter (non-PFC, with 26.5 mm z-height adapter [non-slim]) (not for India/People's Republic of China)</li> <li>65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm) (only for India/People's Republic of China)</li> </ul> <p>1 m length power cord</p> <p>Support for the following battery:</p> <ul style="list-style-type: none"> <li>Embedded 2-cell, 32-Wh, 4.2 Ah Li-ion battery</li> </ul> <p>Supports battery fast charge</p>
Security	<p>Kensington Lock slot</p> <p>TPM (Trusted Platform Module ) 2.0</p>
Operating system	<p><b>Preinstalled:</b></p> <p>Windows 8.1 CPPP</p> <p>Windows 8.1 Small Screen</p>
Serviceability	<p><b>End user replaceable parts:</b></p> <p>AC adapter</p>

# 2 External component identification

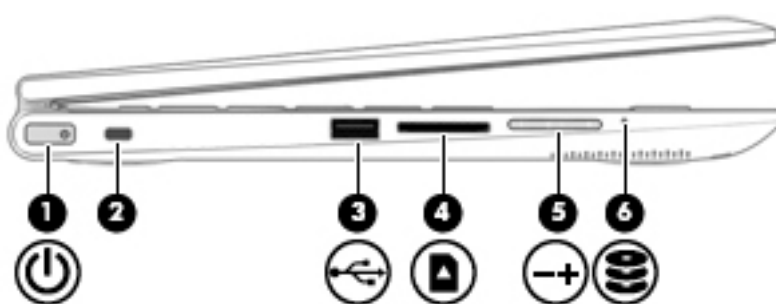
## Right side









Component	Description
(1) 	<p>SIM slot (select models only)</p> <p>Supports a wireless subscriber identity module (SIM) card. The SIM slot is located on the right side of the computer.</p>
(2) 	<p>Audio-out (headphone)/Audio-in (microphone) jack</p> <p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional microphone-only devices.</p> <p><b>WARNING!</b> To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the <i>Regulatory, Safety, and Environmental Notices</i>.</p> <p>To access this document:</p> <ul style="list-style-type: none"><li>▲ From the Start screen, type <code>support</code>, and then select the <b>HP Support Assistant</b> app.</li><li>– or –</li><li>From the Windows desktop, click the question mark icon in the taskbar area of the Windows desktop.</li></ul> <p><b>NOTE:</b> When a device is connected to the jack, the computer speakers are disabled.</p> <p><b>NOTE:</b> Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p>
(3)	<p>Windows button</p> <p>Returns you to the Start screen from an open app or the Windows desktop.</p> <p><b>NOTE:</b> Pressing the Windows button again will return you to the previous screen.</p>
(4) 	<p>USB 3.0 ports (2)</p> <p>Connect optional USB devices, such as a keyboard, mouse, external drive, printer, scanner or USB hub.</p>
(5) 	<p>HDMI port</p> <p>Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed High-Definition Multimedia Interface (HDMI) device.</p>

(6)		RJ-45 (network) jack/status lights	Connects a network cable. <ul style="list-style-type: none"> <li>White: The network is connected.</li> <li>Amber: Activity is occurring on the network.</li> </ul>
(7)		AC adapter light	<ul style="list-style-type: none"> <li>White: The computer is connected to external power and the battery is fully charged.</li> <li>Blinking white: The computer is disconnected from external power and the battery has reached a low battery level.</li> <li>Amber: The computer is connected to external power and the battery is charging.</li> <li>Off: The battery is not charging.</li> </ul>
(8)		Power connector	Connects an AC adapter.

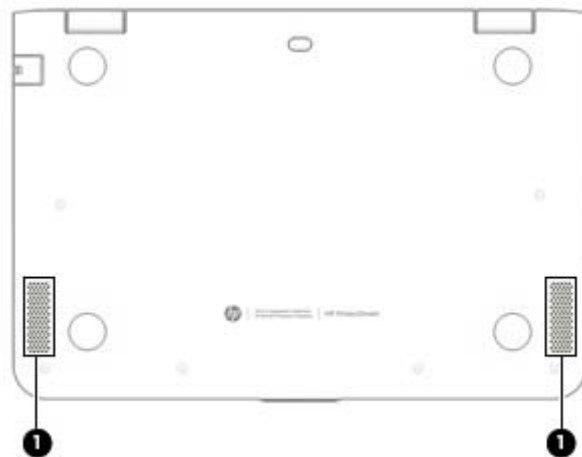
## Left side



Component	Description
(1) 	<p>Power button</p> <ul style="list-style-type: none"> <li>When the computer is off, press the button to turn on the computer.</li> <li>When the computer is on, press the button briefly to initiate Sleep.</li> <li>When the computer is in the Sleep state, press the button briefly to exit Sleep.</li> <li>When the computer is in Hibernation, press the button briefly to exit Hibernation.</li> </ul> <p><b>CAUTION:</b> Pressing and holding down the power button will result in the loss of unsaved information.</p> <p>If the computer has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, see your power options.</p> <p>▲ From the Start screen, type <b>power</b>, select <b>Power and sleep settings</b>, and then select <b>Power and sleep</b> from the list of applications.</p> <p>– or –</p> <p>From the Windows desktop, right-click the <b>Start</b> button, and then select <b>Power Options</b>.</p>

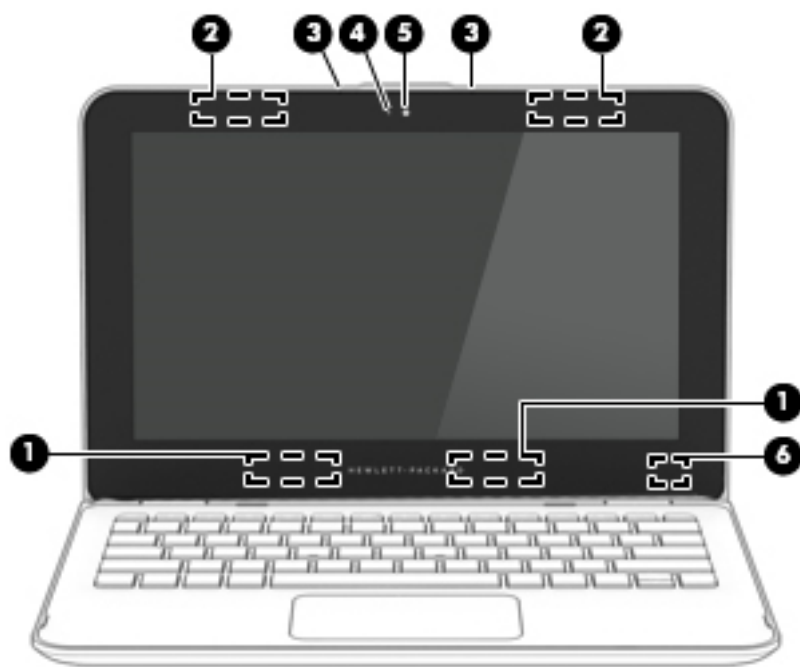
Component		Description
(2)		Attaches an optional security cable to the computer.
		<b>NOTE:</b> The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(3)		Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(4)		Reads optional memory cards that enable you to store, manage, share or access information.
		To insert a card:
		▲ Hold the card label-side up, with connectors facing the slot, insert the card into the slot, and then push in on the card until it is firmly seated.
(5)		To remove a card:
		▲ Press in on the card it until it pops out.
		Controls speaker volume.
(6)		<ul style="list-style-type: none"> <li>To decrease speaker volume, press the – edge of the button.</li> <li>To increase speaker volume, press the + edge of the button.</li> </ul>
		<ul style="list-style-type: none"> <li>Blinking white: The hard drive is being accessed.</li> <li>Amber: HP 3D DriveGuard has temporarily parked the hard drive.</li> </ul>

## Bottom



Component		Description
(1)	Speakers	Produce sound.

# Display



Component	Description
(1) WLAN antenna(s)* (Includes 1 or 2 antennas depending on the model)	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(2) WWAN antennas* (select models only)	Send and receive wireless signals to communicate with wireless wide area networks (WWAN).
(3) Internal microphones	Record sound.
(4) Webcam light	On: The webcam is in use.
(5) Webcam	<p>Records video and captures photographs. Some models allow you to video conference and chat online using streaming video.</p> <p>To use the webcam:</p> <ul style="list-style-type: none"> <li>▲ From the Start screen, type <code>camera</code>, and then select <b>Camera</b> from the list of applications.</li> </ul>
(6) Internal display switch	<p>Turns off the display and initiates Sleep if the display is closed while the power is on.</p> <p><b>NOTE:</b> The internal display switch is not visible from the outside of the computer.</p>

\*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

To access this document:

From the Start screen, type `support`, and then select the **HP Support Assistant** app.

– or –

From the Windows desktop, click the question mark icon in the taskbar area of the Windows desktop.

Your computer can function as a classic notebook and, in addition, the display can be rotated so that the computer transforms into an entertainment stand or a tablet.

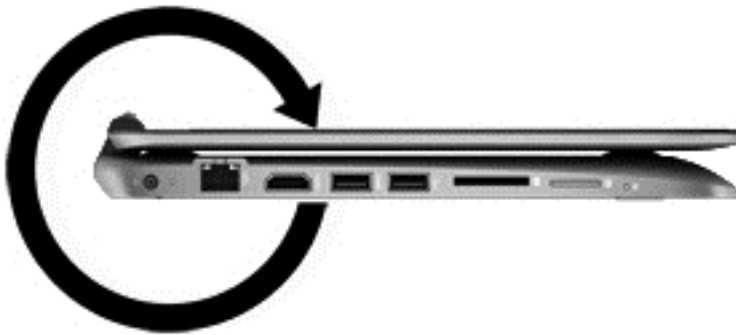
## Changing your notebook to an entertainment stand

To change your notebook to an entertainment stand, raise the display, and then rotate the display backward to a stand position (about 315 degrees).



## Changing your notebook to a tablet

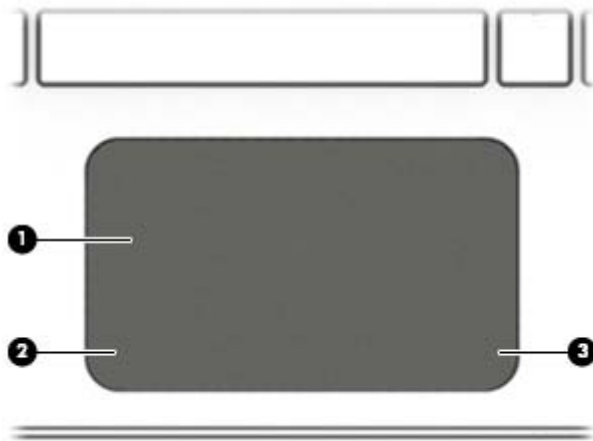
To change your notebook to a tablet, raise the display, and then rotate the display backward until it is flush with the computer bottom (360 degrees).





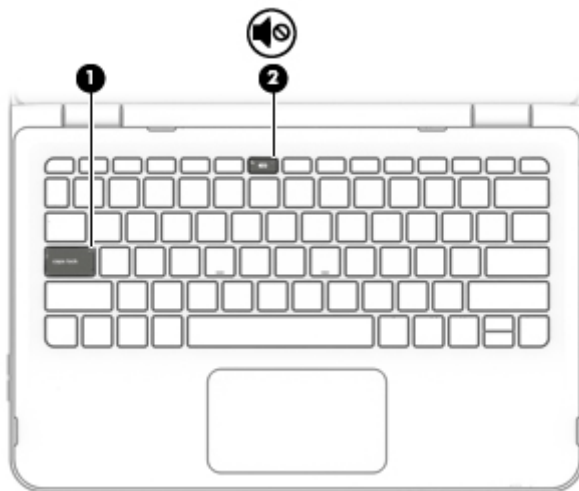
# Top

## TouchPad



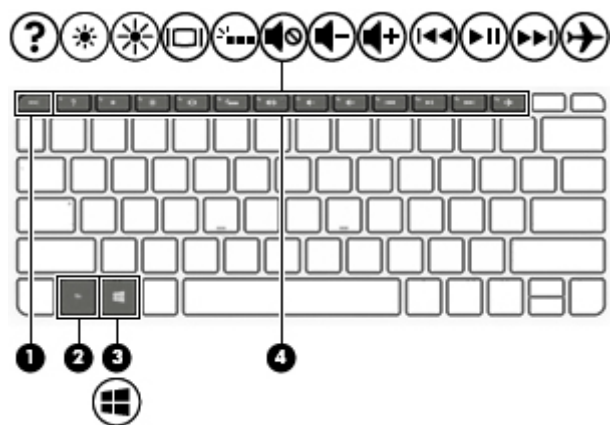
Component		Description
(1)	TouchPad zone	Reads your finger gestures to move the pointer or activate items on the screen.
(2)	Left TouchPad button	Functions like the left button on an external mouse.
(3)	Right TouchPad button	Functions like the right button on an external mouse.


## Lights



Component		Description
(1)	Caps lock light	On: Caps lock is on, which switches the keys to all capital letters.
(2)	Mute light	<ul style="list-style-type: none"><li>Amber: Computer sound is off.</li><li>Off: Computer sound is on.</li></ul>


Keys



Component		Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Executes frequently used system functions when pressed in combination with the esc key, or on select models, the spacebar.
(3)	 Windows key	Returns you to the Start screen from an open app or the Windows desktop. <b>NOTE:</b> Pressing the Windows key again will return you to the previous screen.
(4)	Action keys	Execute frequently used system functions. <b>NOTE:</b> On select models, the f5 action key turns the radiance backlight keyboard feature off or on.

# Labels

The labels affixed to the computer provide information you may need when you troubleshoot system problems or travel internationally with the computer.

 **IMPORTANT:** Check the following locations for the labels described in this section: the bottom of the computer, inside the battery bay, under the removable service door, or on the back of the display.


- Service label—Provides important information to identify your computer. When contacting support, you will probably be asked for the serial number, and possibly for the product number or the model number. Locate these numbers before you contact support.

Your service label will resemble one of the examples shown below. Refer to the illustration that most closely matches the service label on your computer.



Component	
(1)	Serial number
(2)	Product number
(3)	Warranty period
(4)	Model number (select models only)

- Microsoft® Certificate of Authenticity label (select models only prior to Windows 8)—Contains the Windows Product Key. You may need the Product Key to update or troubleshoot the operating system. HP platforms with Windows 8 or Windows 8.x preinstalled do not have the physical label. Instead a Digital Product Key is electronically installed.

 **NOTE:** The Digital Product Key is automatically recognized and activated by Microsoft operating systems when a Windows 8 or Windows 8.x operating system is reinstalled using HP-approved recovery methods.

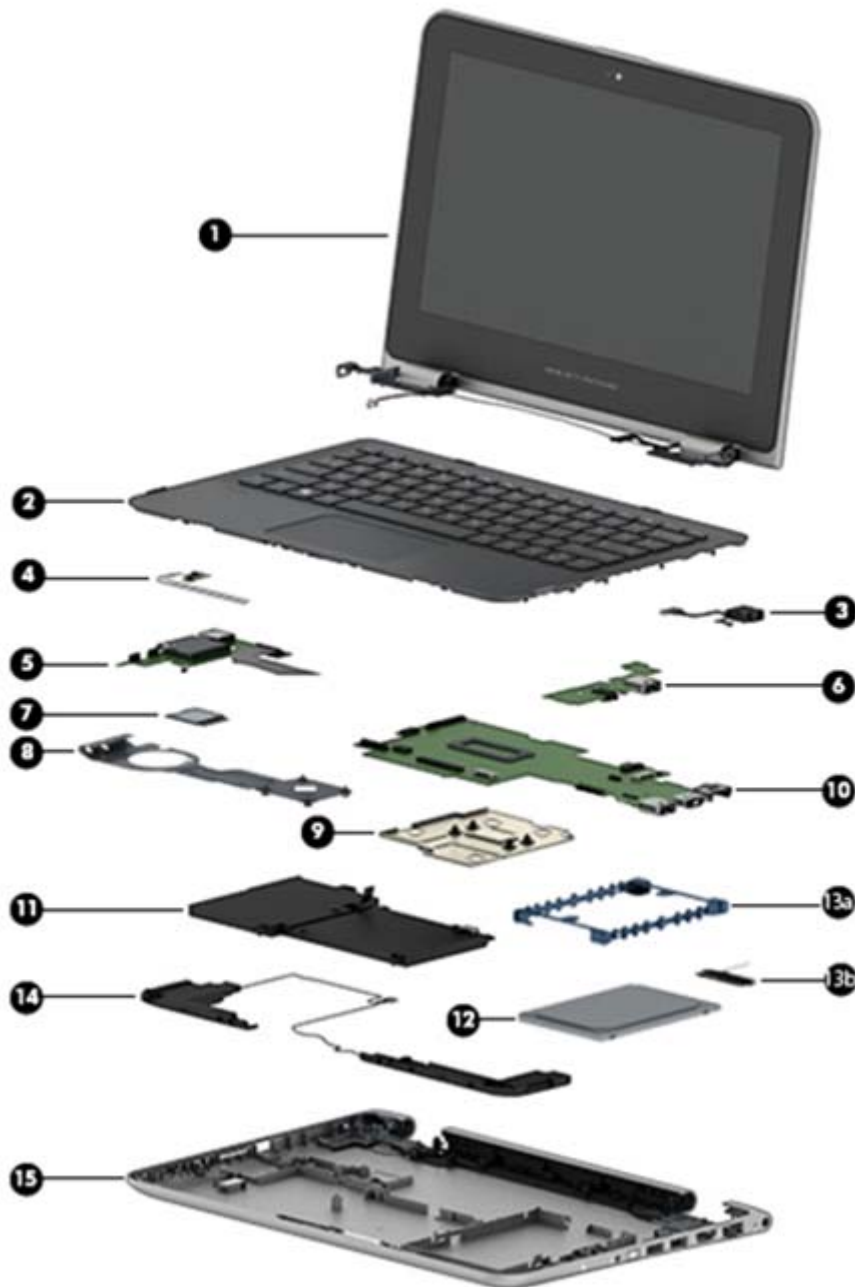
- Regulatory label(s)—Provide(s) regulatory information about the computer.
- Wireless certification label(s)—Provide(s) information about optional wireless devices and the approval markings for the countries or regions in which the devices have been approved for use.

## 3 Illustrated parts catalog

### Computer major components



**NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.

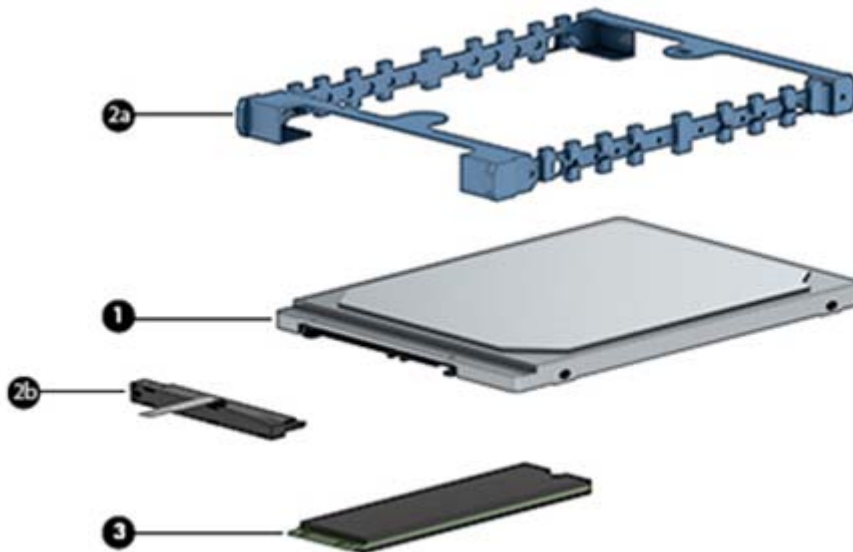


Item	Component	Spare part number
(1)	<b>Display assembly</b>	not spared
(2)	<b>Top cover</b> (includes keyboard and TouchPad)	
	For use in Belgium	809543-A41
	For use in Brazil	809543-201
	For use in Bulgaria	809543-261
	For use in Canada (English/French)	809543-DB1
	For use in the Czech Republic and Slovakia	809543-FL1
	For use in France	809543-051
	For use in Germany	809543-041
	For use in Greece	809543-151
	For use in Hungary	809543-211
	For use internationally	809543-B31
	For use in Israel	809543-BB1
	For use in Italy	809543-061
	For use in Japan	809543-291
	For use in Latin America	809543-161
	For use in the Netherlands	809543-DH1
	For use in Portugal	809543-131
	For use in Romania	809543-271
	For use in Russia	809543-251
	For use in Saudi Arabia	809543-171
	For use in South Korea	809543-AD1
	For use in Spain	809543-071
	For use in Switzerland	809543-BG1
	For use in Taiwan	809543-AB1
	For use in Thailand	809543-281
	For use in Turkey	809543-141
	For use in the United Kingdom	809543-031
	For use in the United States	809543-001
(3)	<b>Power connector cable</b>	807522-001
(4)	<b>Power button board</b> (includes cable)	809546-001
(5)	<b>USB/card reader board</b> (includes cable)	
	For use in models with an Intel Core processor	809544-001
	For use in models with an Intel Pentium or Celeron processor	819789-001

Item	Component	Spare part number
(6)	<b>USB/audio jack board</b> (includes cable)	809545-001
(7)	<b>WLAN module:</b>	
	Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter for use in Brazil	751416-005
	Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 WiFi + BT 4.0 Combo Adapter	784644-005
	Realtek RTL8723BE 802.11b/g/n 1x1 Wi-Fi + BT4.0 Combo Adapter	792610-005
	<b>Heat sink</b> (includes replacement thermal material)	
(8)	For use in models with Intel Pentium and Celeron processors	
(9)	For use in models with Intel Core processors	809536-001
(10)	<b>System board</b> (includes integrated processor):	
	<b>NOTE:</b> System board spare part kits include replacement thermal material.	
	Intel CoreT M-5Y10C processor and the Windows 8.1 Standard operating system	809560-501
	Intel CoreT M-5Y10C processor and a non-Windows 8 operating system	809560-001
	Intel Pentium N3700 processor and the Windows 8.1 Standard operating system	809557-501
	Intel Pentium N3700 processor and a non-Windows 8 operating system	809557-001
	Intel Celeron N3050 processor and the Windows 8.1 Standard operating system	809556-501
	Intel Celeron N3050 processor and a non-Windows 8 operating system	809556-001
(11)	<b>2-cell, 32-Wh, 4.2-Ah, Li-ion battery</b>	796355-005
(12)	<b>Hard drive</b> (does not include hard drive bracket, hard drive connector cable, or screws):	
	1-TB, 5400-rpm, 7.0-mm	762990-005
	500-GB, 5400-rpm, 7.0-mm	778186-005
	500-GB, 5400-rpm, 8 GB hybrid SSD, 7.0-mm	732000-005
	<b>Hard Drive Hardware Kit</b> includes:	809537-001
(13a)	Hard drive bracket	
(13b)	Hard drive connector cable	
	<b>Solid-State Drive</b> (not illustrated)	
	128 GB solid-state drive (SSD), M.2, TLC	809555-001
(14)	<b>Speaker Kit</b> (includes left and right speakers and cable)	809554-001
(15)	<b>Bottom cover</b>	
	Red models	809574-001
	Silver models	809670-001
	Green models	809672-001
	Purple models	816504-001
(*)	<b>Memory modules</b> (DDR3L-1600; not illustrated)	
	<b>IMPORTANT:</b> The memory modules are not customer replaceable.	

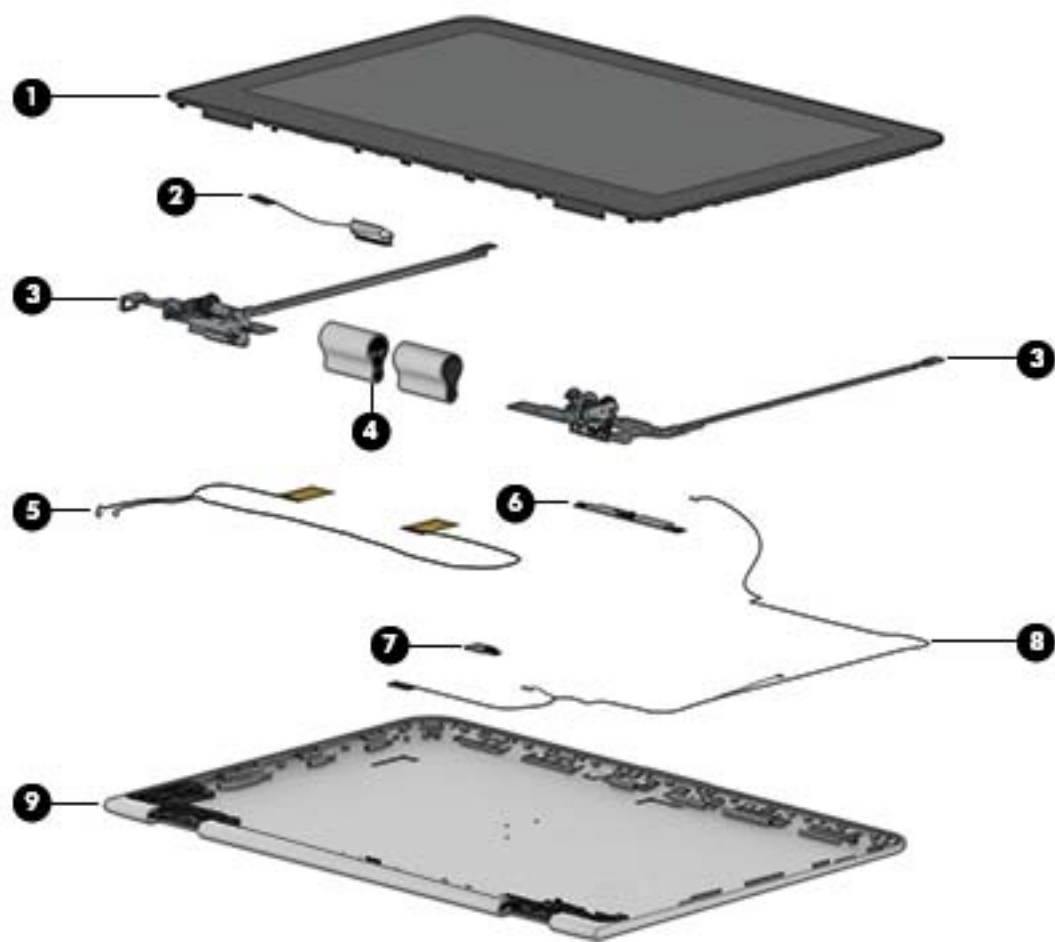
Item	Component	Spare part number
	8-GB	693374-005
	4-GB	691740-005

## Mass storage devices



	Component	Spare part number
<b>(1)</b>	<b>Hard drive</b> (does not include hard drive bracket, hard drive connector cable, or screws):	
	1-TB, 5400-rpm, 7.0-mm	762990-005
	500-GB, 5400-rpm, 7.0-mm	778186-005
	500-GB, 5400-rpm, 8 GB hybrid SSD, 7.0-mm	732000-005
	<b>Hard Drive Hardware Kit</b> , includes:	809537-001
<b>(2a)</b>	Hard drive bracket	
<b>(2b)</b>	Connector cable	
<b>(3)</b>	<b>Solid-State Drive</b>	
	128 GB solid-state drive (SSD), M.2, TLC	809555-001
	<b>Solid-state Drive Hardware Kit</b>	809538-001
	<b>External DVD±RW Double-Layer with SuperMulti Drive</b> (not illustrated)	747080-001

# Display assembly subcomponents



Item	Component	Spare part number
(1)	Display panel (raw)	
	SVA	809548-001
	UWVA	809549-001
(2)	Display cable	809576-001
(3)	Display hinges (left and right; includes rubber cap)	809539-001
(4)	Display hinge covers (left and right)	
	For use in red models	809541-001
	For use in silver models	809540-001
	For use in green models	809542-001
	For use in purple models	809828-001
(5)	Antennas (primary and secondary)	809530-001
(6)	Webcam	807542-001
(7)	Sensor board (not illustrated)	



Item	Component	Spare part number
	For use in models with an Intel Core processor	809547-001
	For use in models with an Intel Pentium or Celeron processor	819790-001
<b>(8)</b>	<b>Webcam/sensor/touch control board cable</b>	809534-001
<b>(9)</b>	<b>Display enclosure</b>	
	Silver models	809573-001
	Red models	809574-001
	Green models	809575-001
	Purple models	816503-001

## Miscellaneous parts

Component	Spare part number
<b>AC adapter</b>	
45-W HP Smart AC adapter (non-PFC, 4.5-mm, non-slim)	741727-001
65-W HP Smart AC adapter (non-PFC, EM, 4.5-mm)	714657-001
<b>Power cord</b> (3-pin, black, 1.0-m):	
For use in Argentina	755530-D01
For use in Australia	755530-011
For use in Brazil	755530-202
For use in the People's Republic of China	755530-AA1
For use in Denmark	755530-081
For use in Europe	755530-021
For use in India	755530-D61
For use in Israel	755530-BB1
For use in Italy	755530-061
For use in Japan	755530-291
For use in North America	755530-001
For use in South Africa	755530-AR1
For use in South Korea	755530-AD1
For use in Switzerland	755530-111
For use in Taiwan	755530-AB1
For use in Thailand	755530-201
For use in the United Kingdom and Singapore	755530-031
<b>Rubber Kit</b> (includes 2 rear rubber feet and rubber screw cover)	

<b>Component</b>	<b>Spare part number</b>
For use in silver models	809550-001
For use in red models	809551-001
For use in green models	809552-001
For use in purple models	816522-001
<b>Screw Kit</b>	809553-001
<b>Synaptics Active Pen</b>	773175-001
<b>HDMI to VGA adapter</b>	701943-001

---

## 4 Removal and replacement procedures preliminary requirements

### Tools required


You will need the following tools to complete the removal and replacement procedures:

- Flat-bladed screw driver
- Magnetic screw driver
- Phillips P0 and P1 screw drivers

### Service considerations

The following sections include some of the considerations that you must keep in mind during disassembly and assembly procedures.


---

 **NOTE:** As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

---

### Plastic parts


---

 **CAUTION:** Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic parts. Apply pressure only at the points designated in the maintenance instructions.

---

## Cables and connectors

---


 **CAUTION:** When servicing the computer, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.

---

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

## Drive handling

---

 **CAUTION:** Drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a drive, or loss of information, observe these precautions:

---

Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.

Handle drives on surfaces covered with at least one inch of shock-proof foam.

Avoid dropping drives from any height onto any surface.

After removing a hard drive, an optical drive, or a diskette drive, place it in a static-proof bag.

Avoid exposing an internal hard drive to products that have magnetic fields, such as monitors or speakers.

Avoid exposing a drive to temperature extremes or liquids.

If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package “FRAGILE.”

---


# Grounding guidelines

## Electrostatic discharge damage

Electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage may have occurred.

An electronic device exposed to ESD may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

 **CAUTION:** To prevent damage to the computer when you are removing or installing internal components, observe these precautions:


Keep components in their electrostatic-safe containers until you are ready to install them.

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.

 **CAUTION:** A product can be degraded by as little as 700 V.

Typical electrostatic voltage levels			
Event	Relative humidity		
	10%	40%	55%
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tube	2,000 V	700 V	400 V
Removing DIPS from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPS from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

## Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

## Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screw drivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static-safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

## Equipment guidelines

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm  $\pm 10\%$  resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive must be worn in contact with the skin.

The following grounding equipment is recommended to prevent electrostatic damage:

- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials


The following table lists the shielding protection provided by antistatic bags and floor mats.

Material	Use	Voltage protection level
Antistatic plastics	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

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## 5 Removal and replacement procedures for Authorized Service Provider parts

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 **CAUTION:** Components described in this chapter should only be accessed by an authorized service provider. Accessing these parts can damage the computer or void the warranty.

 **NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.

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### Component replacement procedures

This chapter provides removal and replacement procedures for Authorized Service Provider only parts.

There are as many as 57 screws that must be removed, replaced, and/or loosened when servicing the computer. Make special note of each screw size and location during removal and replacement.



## Top cover

Description	Spare part number
<b>Base enclosure:</b>	
For use in red models	809671-001
For use in silver models	809670-001
For use in green models	809672-001
For use in purple models	816504-001
<b>Top cover with keyboard and TouchPad:</b>	
For use in Belgium	809543-A41
For use in Brazil	809543-201
For use in Bulgaria	809543-261
For use in Canada (English/French)	809543-DB1
For use in the Czech Republic and Slovakia	809543-FL1
For use in France	809543-051
For use in Germany	809543-041
For use in Greece	809543-151
For use in Hungary	809543-211
For use internationally	809543-B31
For use in Israel	809543-BB1
For use in Italy	809543-061
For use in Japan	809543-291
For use in Latin America	809543-161
For use in the Netherlands	809543-DH1
For use in Portugal	809543-131
For use in Romania	809543-271
For use in Russia	809543-251
For use in Saudi Arabia	809543-171
For use in South Korea	809543-AD1
For use in Spain	809543-071
For use in Switzerland	809543-BG1
For use in Taiwan	809543-AB1
For use in Thailand	809543-281
For use in Turkey	809543-141
For use in the United Kingdom	809543-031
For use in the United States	809543-001

Before removing the top cover, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.

Remove the top cover:

1. Position the computer upside-down.
2. Pry the two rear rubber feet off the bottom cover **(1)**.
3. Pry the screw cover off the bottom cover **(2)**.

Rubber feet and rubber screw cover are available in the Rubber Kit, spare part numbers:

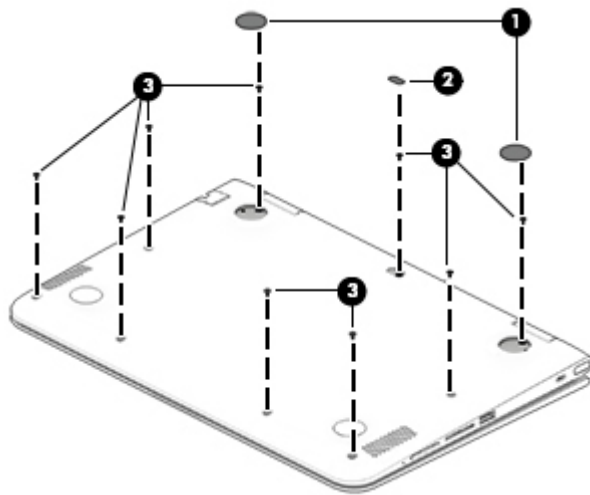
Silver models: 809550-001

Red models: 809551-001

Green models: 809552-001


Purple models: 816522-001


4. Remove the nine Phillips PM2.5×6.0 screws **(3)** that secure the top cover to the computer.

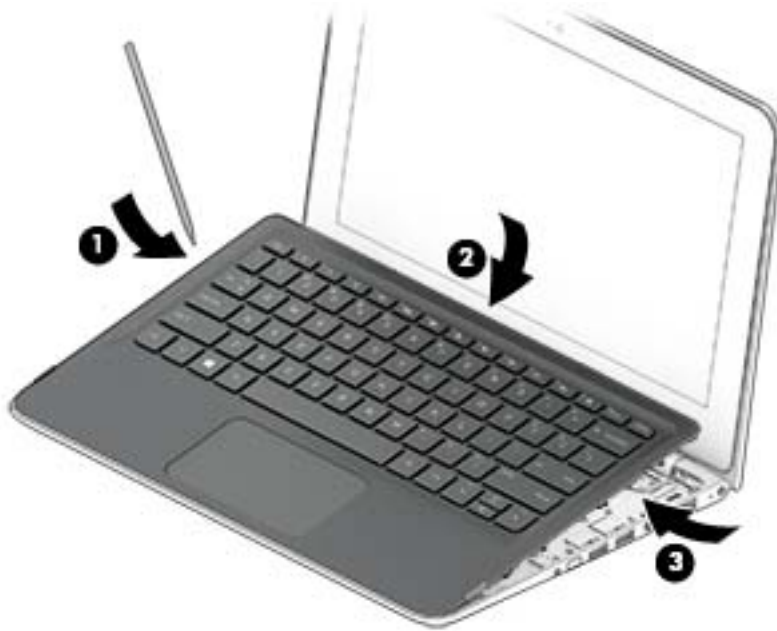


5. Position the computer upright, and then open the computer as far as possible.

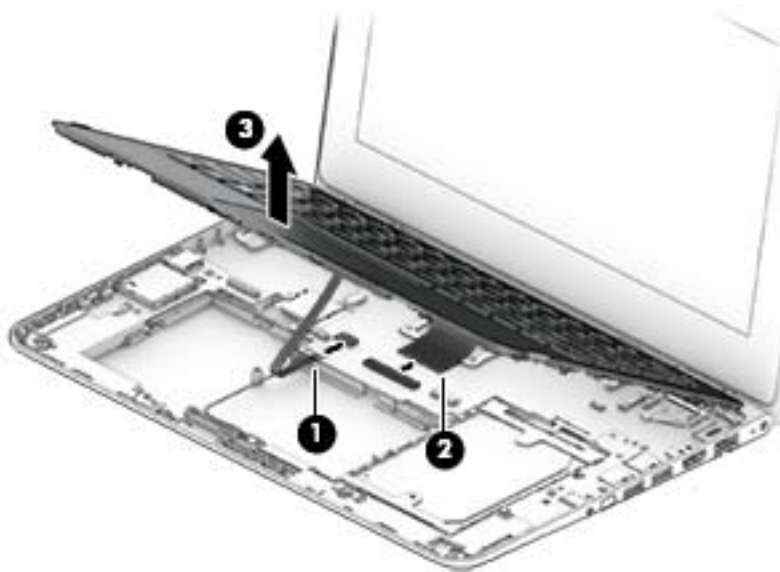
6. Run a plastic, non-marking tool around the seam to disengage the top cover from the computer. Separate the top cover from the computer by separating and lifting up at the seam on the left side **(1)**, top **(2)**, and right side **(3)**, far enough to access the keyboard and touchpad connectors on the system board.

 **NOTE:** You can use a plastic, non-marking tool inserted in the seam to disengage the top cover.

 **NOTE:** When you lift the top cover, the keyboard cable and the touchpad cable are connected to the system board. Be sure not to pull the cables loose when lifting the bottom cover.



7. Disconnect the touchpad cable **(1)** and the keyboard cable **(2)** from the system board, and then remove the top cover from the computer **(3)**.



Reverse this procedure to install the top cover.

## TouchPad

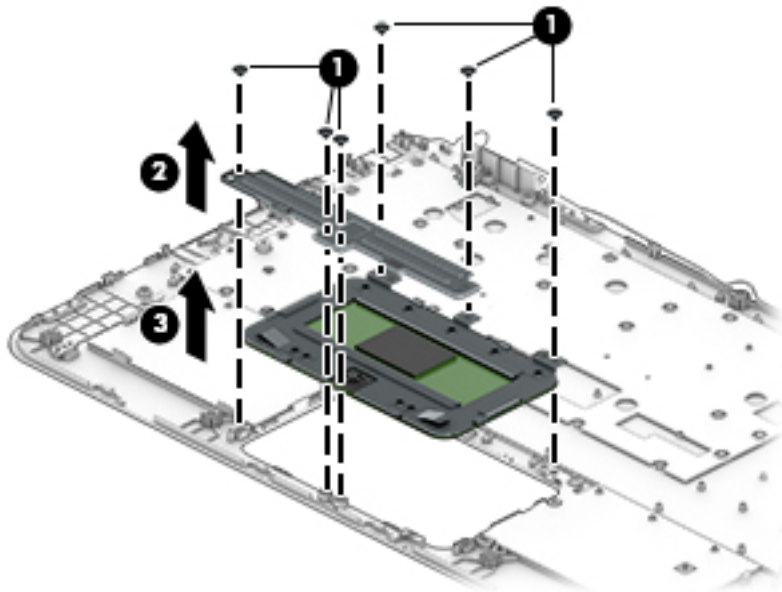
Description	Spare part number
TouchPad	not spared

Before removing the TouchPad, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Top cover on page 25](#)).
5. Remove the battery (see [Battery on page 47](#)).

Remove the TouchPad:

1. Position the top cover upside down.
2. Remove the six broadhead Phillips PM2.0×2.0 screws **(1)** that secure the touchpad and the bracket.
3. Lift the bracket off the top cover **(2)**.
4. Lift the touchpad off the computer **(3)**.



Reverse this procedure to install the TouchPad.

## Hard drive

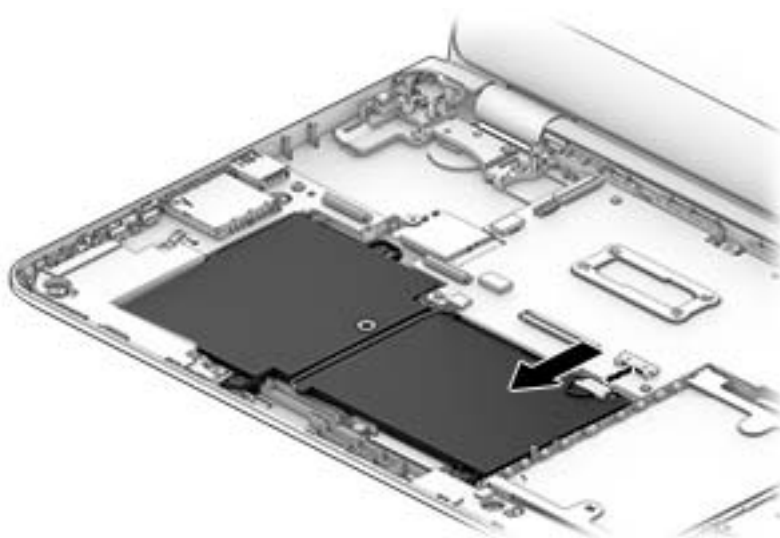


**NOTE:** The Hard Drive Hardware Kit, spare part number 809537-001, includes the hard drive bracket and hard drive connector cable.

Description	Spare part number
1-TB, 5400-rpm, 7.0-mm	762990-005
500-GB, 5400-rpm, 7.0-mm	778186-005
500-GB, 5400-rpm, 8 GB hybrid SSD, 7.0-mm	732000-005
<b>Hard Drive Hardware Kit</b> (includes hard drive bracket and connector cable)	809537-001

Before removing the hard drive, follow these steps:

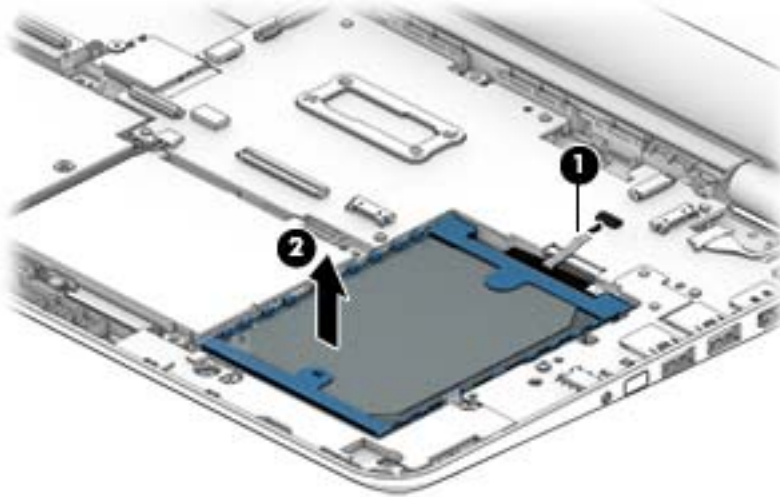
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).
5. Disconnect the battery.



Remove the hard drive:

1. Disconnect the hard drive connector cable (1) from the system board.

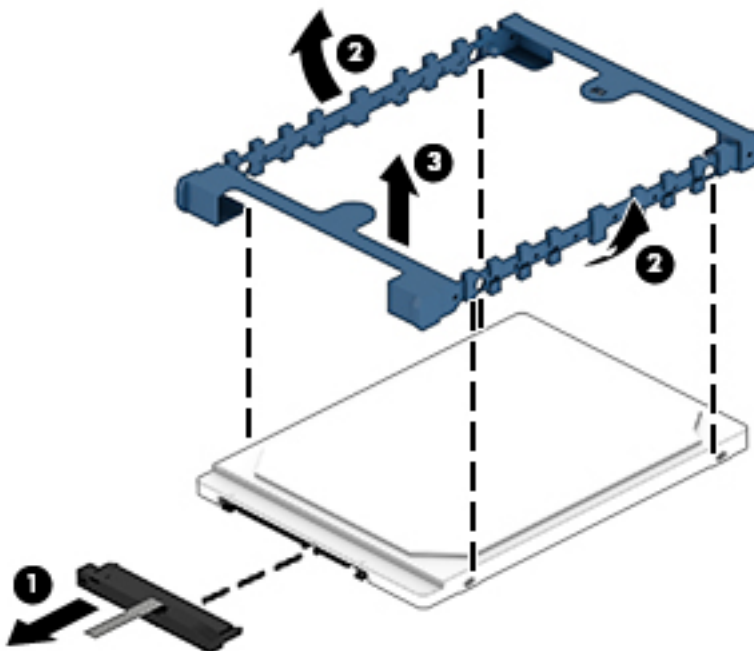
2. Lift the hard drive out of the computer **(2)**.



3. If it is necessary to disassemble the hard drive, perform the following steps:

- a. Disconnect the hard drive connector cable **(1)** from the hard drive.
- b. Pull the sides of the bracket away from the drive **(2)** to remove the pegs that secure the bracket to the hard drive.
- c. Remove the hard drive bracket **(3)** from the hard drive.

The hard drive bracket and hard drive connector cable are available in the Hard Drive Hardware Kit, spare part number 809537-001.



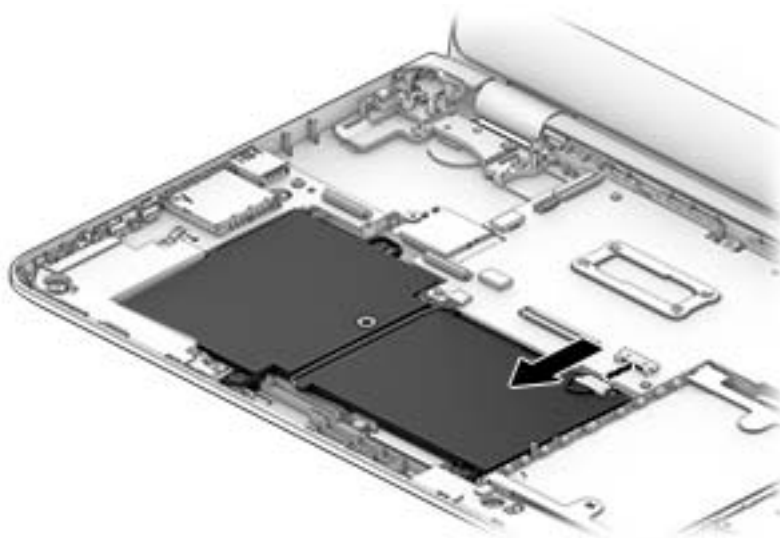
Reverse this procedure to install the hard drive.

## Solid-state drive (M.2)

Description	Spare part number
128 GB solid-state drive (SSD), M.2, TLC	809555-001

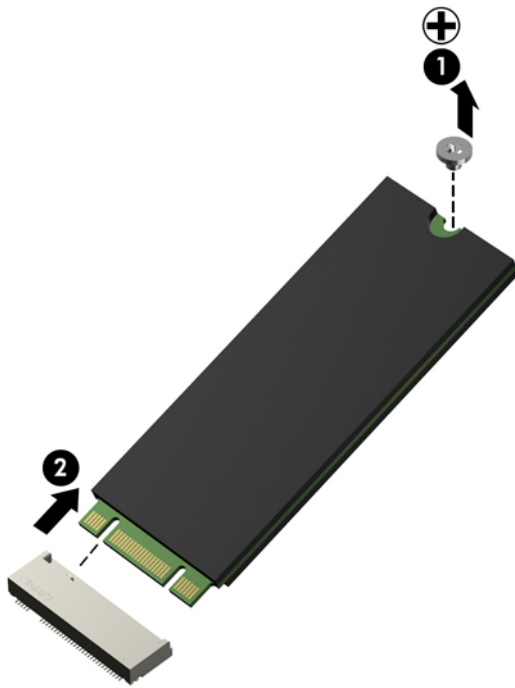
Before removing the solid-state drive, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the bottom cover (see [Top cover on page 25](#)).
5. Disconnect the battery.



Remove the solid-state drive:

1. Remove the Phillips PM2.0×3.5 screw **(1)** that secures the solid-state drive to the system board.
2. Remove the solid-state drive **(2)** by pulling the drive away from the slot at an angle.



Reverse this procedure to install the solid-state drive.



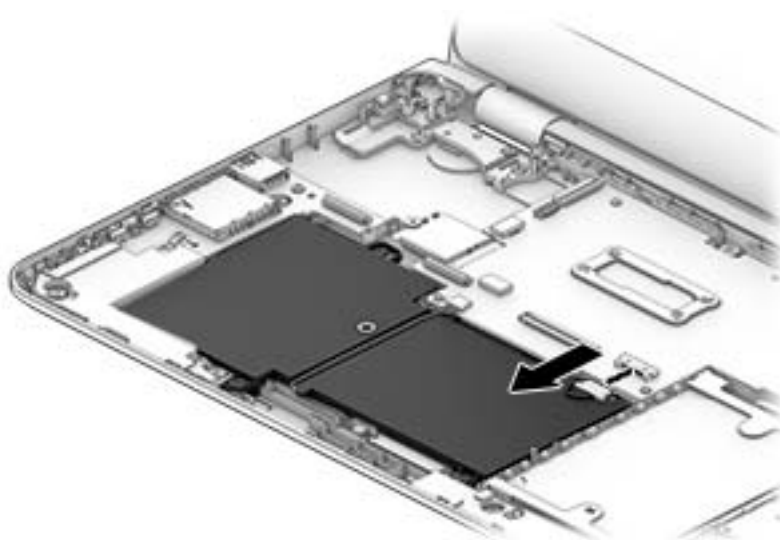
## USB/audio jack board (right side)

Description	Spare part number
USB/audio jack board (includes cable)	809545-001

The USB/audio jack board is located on the right side of the computer. Do not confuse this board with the USB/card reader/volume board on the left side of the computer.

Before removing the USB/audio jack board, follow these steps:

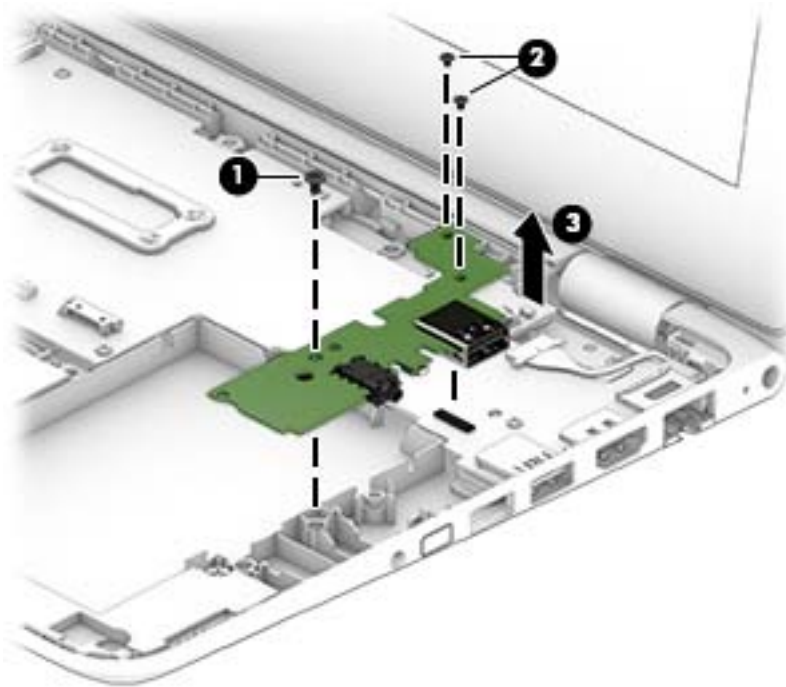
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).
5. Disconnect the battery.



To remove the USB/audio jack board:

1. Remove the Phillips PM2.5×4.0 screw **(1)**.
2. Remove the two Phillips PM2.0×2.0 screws **(2)**.

3. Lift the board straight up to disconnect it from the connector on the system board (3).



Reverse this procedure to install the USB/audio board.

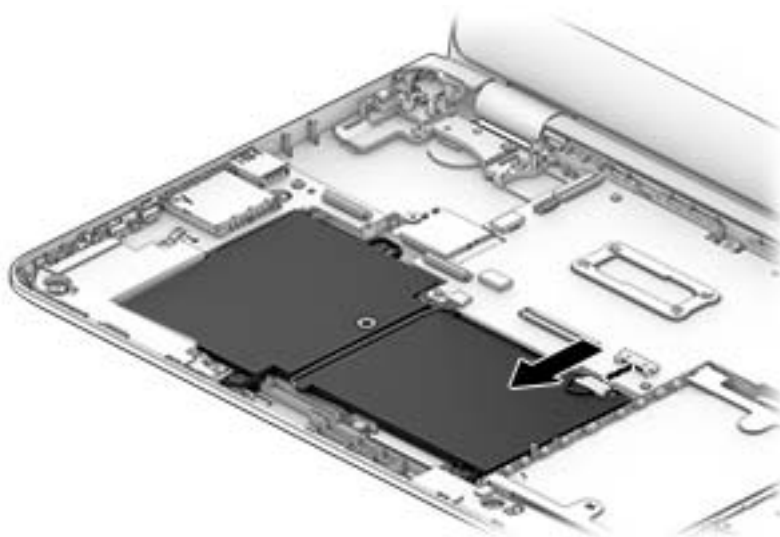
## USB/card reader board (left side)

Description	Spare part number
USB/card reader board for use in models with an Intel Core processor (includes cable)	809544-001
USB/card reader board for use in models with an Intel Pentium or Celeron processor (includes cable)	819789-001

The USB/card reader/volume board is located on the left side of the computer. Do not confuse this board with the USB/audio jack board on the right side of the computer.

Before removing the USB/card reader board, follow these steps:

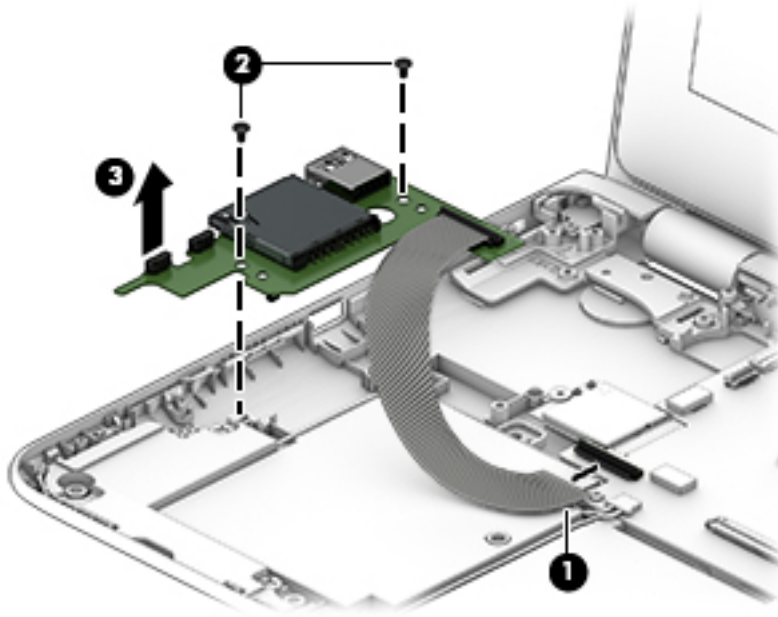
1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).
5. Disconnect the battery.



To remove the USB/card reader board:

1. Disconnect the cable from the system board **(1)**.
2. Remove the two Phillips PM2.5×4.0 screws **(2)**.

3. Remove the board from the computer **(3)**.



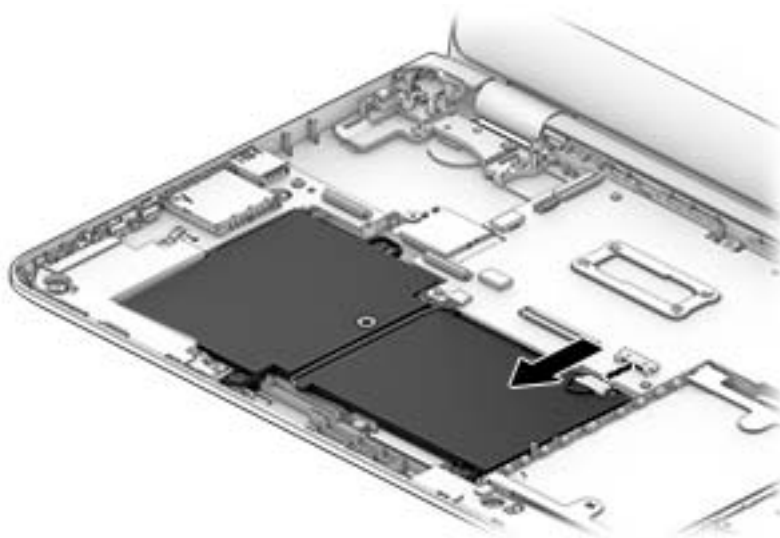
Reverse this procedure to install the USB/card reader board.

## Speakers

Description	Spare part number
Speaker Kit (includes left and right speakers and cable)	809554-001

Before removing the speakers, follow these steps:


1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).
5. Disconnect the battery.

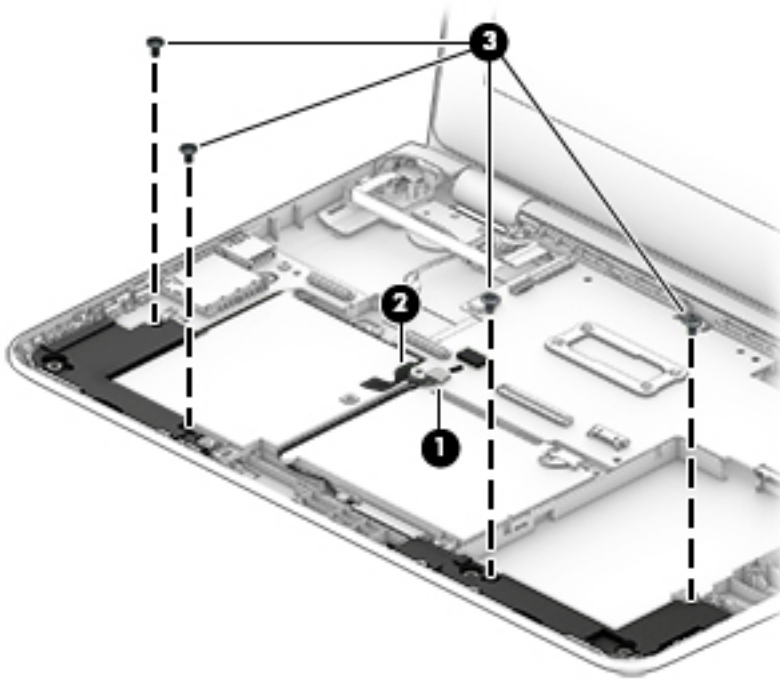


Remove the speakers:

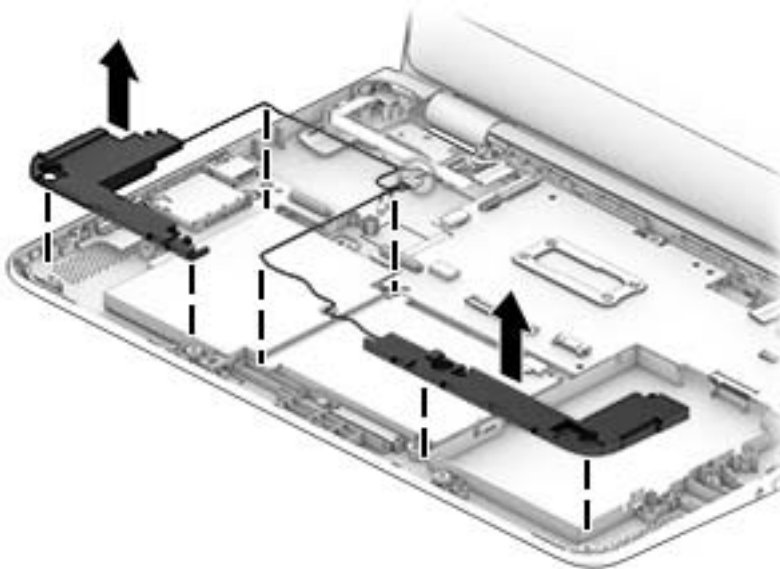
1. Disconnect the speaker cable from the system board **(1)**.
2. Remove the tape **(2)** that secures the speaker cable to the top of the battery.

3. Remove the four Phillips PM2.5×6.0 screws (3) that secure the speakers to the computer.

 **NOTE:** Rubber gaskets fit around each screw. For installation, make sure the gaskets are properly installed.



4. Lift the speakers from the computer, noting the proper cable routing for reinstallation.



Reverse this procedure to install the speakers.

## System board

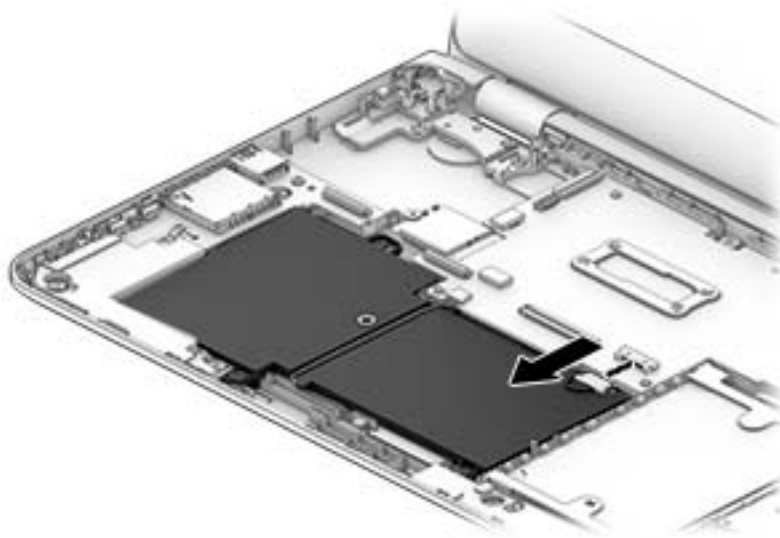


**NOTE:** The system board spare part kit includes replacement thermal material.

Description	Spare part number
<b>System board for use in models equipped with:</b>	
Intel Core™ M-5Y10C processor and the Windows 8.1 Standard operating system	809560-501
Intel Core™ M-5Y10C processor and a non-Windows 8 operating system	809560-001
Intel Pentium N3700 processor and the Windows 8.1 Standard operating system	809557-501
Intel Pentium N3700 processor and a non-Windows 8 operating system	809557-001
Intel Celeron N3050 processor and the Windows 8.1 Standard operating system	809556-501
Intel Celeron N3050 processor and a non-Windows 8 operating system	809556-001

Before removing the system board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).
5. Disconnect the battery.

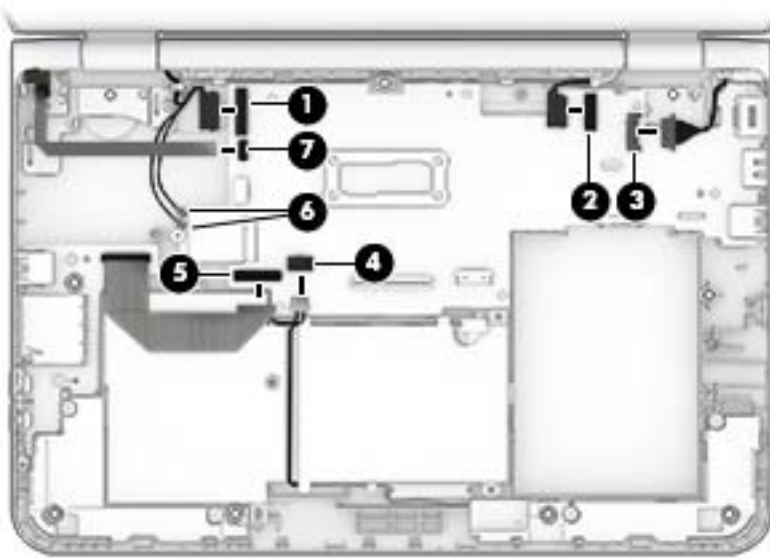


**NOTE:** When replacing the system board, be sure that the following components (as necessary) are removed from the defective system board and installed on the replacement system board:

- WLAN module (see [WLAN module on page 43](#))
- Solid-state drive (see [Solid-state drive \(M.2\) on page 31](#))
- Heat sink (see [Heat sink on page 44](#))

Remove the system board:

1. Disconnect the following cables from the system board:
  - (1): Display cable
  - (2): Touch board cable
  - (3): Power connector cable
  - (4): Speaker cable
  - (5): USB/card reader board cable
  - (6): Wireless antennas (may include one or two antennas)
  - (7): Power button board cable



2. Remove the Phillips PM2.5×3.0 screw from the WLAN module (1).

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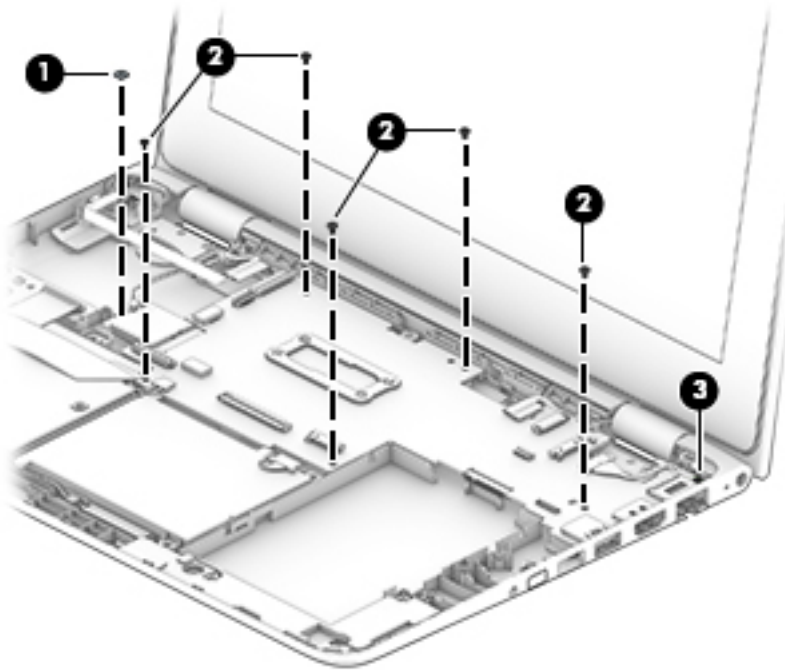
**CAUTION:** To avoid damaging the WLAN module, do not remove the module from the system board socket until AFTER you removing the system board from the computer.

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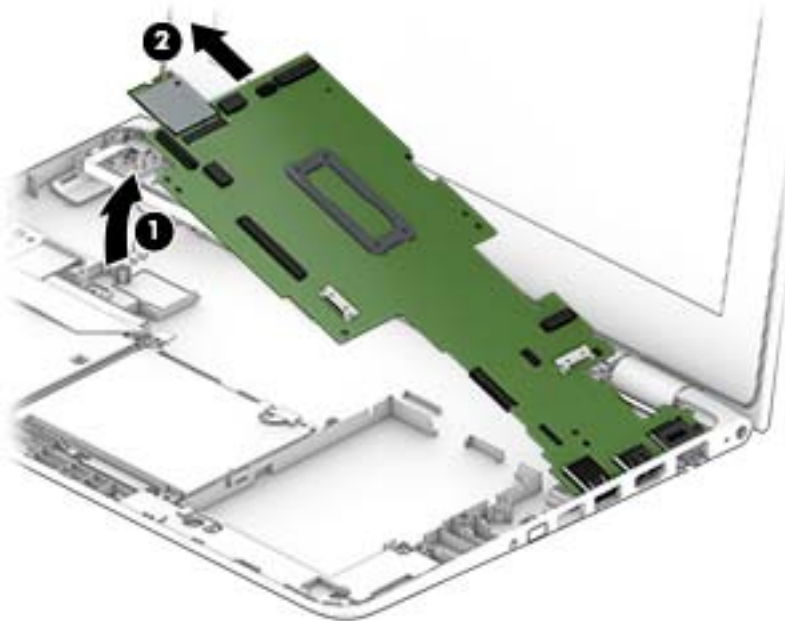
3. Remove the five Phillips PM2.5×4.0 screws (2) that secure the system board to the computer.



4. Loosen the captive screw in the upper right corner of the system board (3).



5. Lift the left side of the system board (1), and then pull the system board toward the left to remove it from the computer (2).



Reverse this procedure to install the system board.

## Memory module

Description	Spare part number
8-GB (DDR3L-1600)	693374-005
4-GB (DDR3L-1600)	691740-005



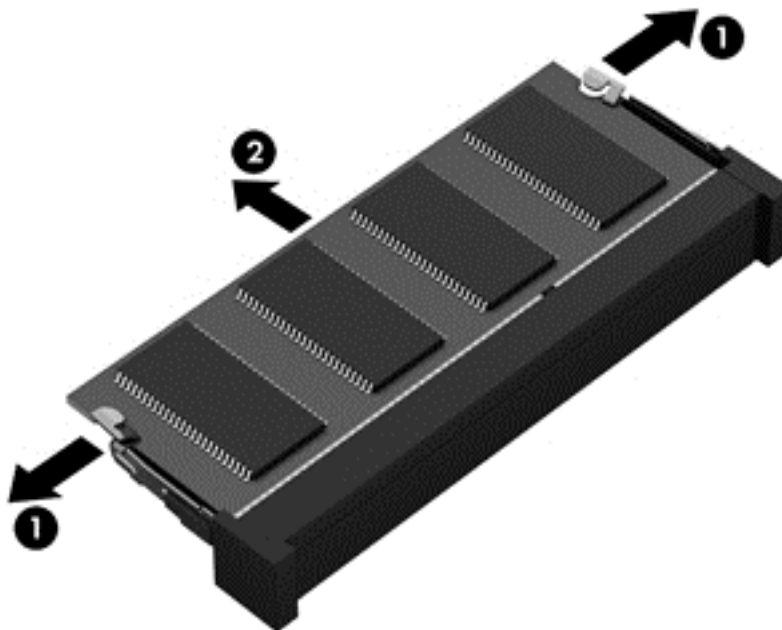
**IMPORTANT:** The memory modules are not customer replaceable.

Before removing a memory module, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).
5. Remove the system board (see [System board on page 39](#)).

To remove a memory module:

1. Remove the memory shielding.
2. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The memory module tilts up.)
3. Remove the memory module **(2)** by pulling it away from the slot at an angle.



Reverse this procedure to install a memory module.

## WLAN module

Description	Spare part number
Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 Wi-Fi + BT 4.0 Combo Adapter for use in Brazil	751416-005
Intel Dual Band Wireless-AC 3160 802.11 ac 1x1 Wi-Fi + BT 4.0 Combo Adapter	784644-005
Realtek RTL8723BE 802.11b/g/n 1x1 Wi-Fi + BT4.0 Combo Adapter	792610-005

**CAUTION:** To avoid damaging the boards, do not remove the WLAN module with the system board installed in the computer. Remove the system board, and then disconnect the WLAN module from the removed system board.

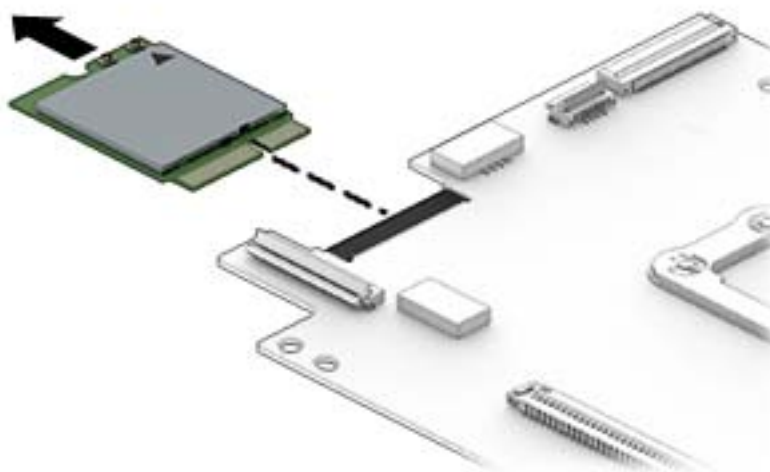
**CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore device functionality, and then contact technical support.

Before removing the WLAN module, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).
5. Remove the system board (see [System board on page 39](#)).

Remove the WLAN module:

- ▲ From the removed system board, remove the WLAN module by pulling the module away from the slot.



Reverse this procedure to install the WLAN module.

## Heat sink

Description	Spare part number
Heat sink for use in models with Intel Core processors (includes replacement thermal material)	809536-001
Heat sink for use in models with Intel Pentium and Celeron processors (includes replacement thermal material)	819788-001

Before removing the heat sink, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).
5. Remove the system board (see [System board on page 39](#)).

Remove the heat sink:

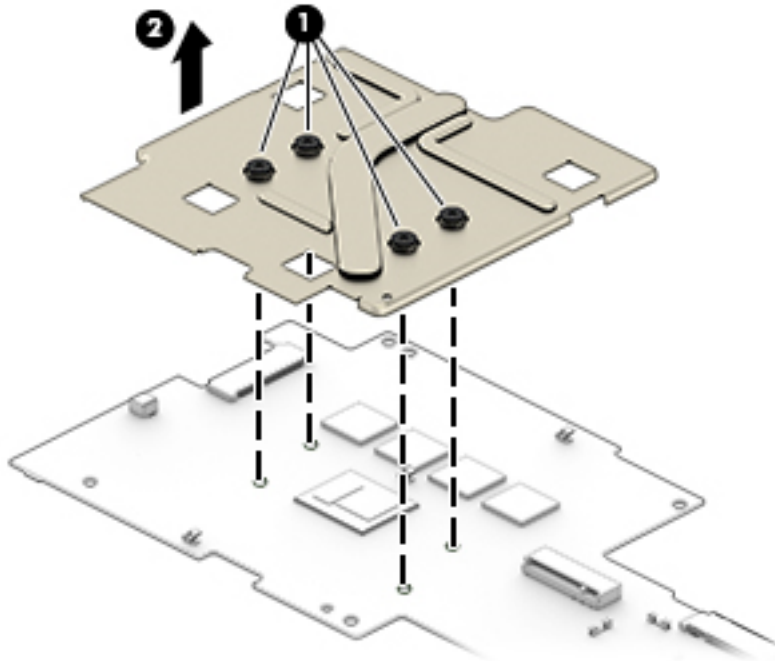
1. Following the 1 through 4 sequence stamped into the heat sink, loosen the four captive Phillips screws **(1)** that secure the heat sink to the system board.

2. Remove the heat sink (2).

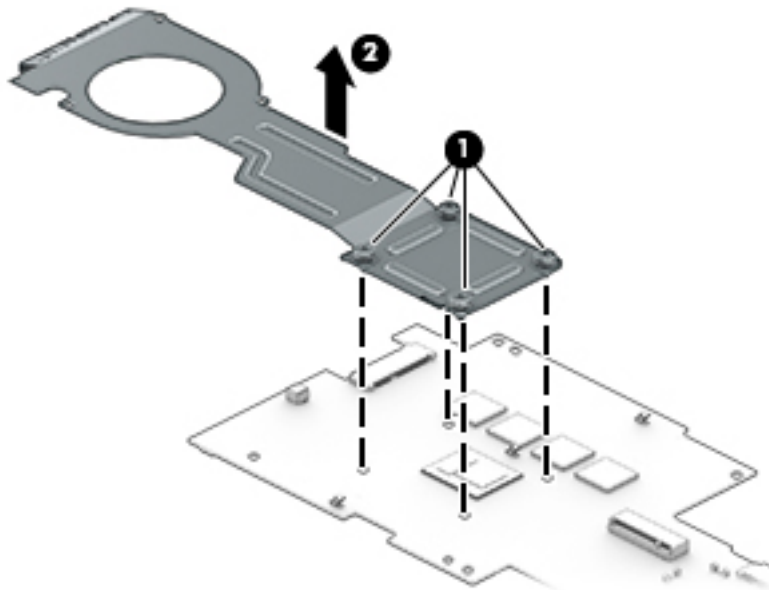


**NOTE:** Due to the adhesive quality of the thermal material located between the heat sink and the system board components, it may be necessary to move the heat sink from side to side to detach it.

**Models with Intel Pentium or Celeron processors:**

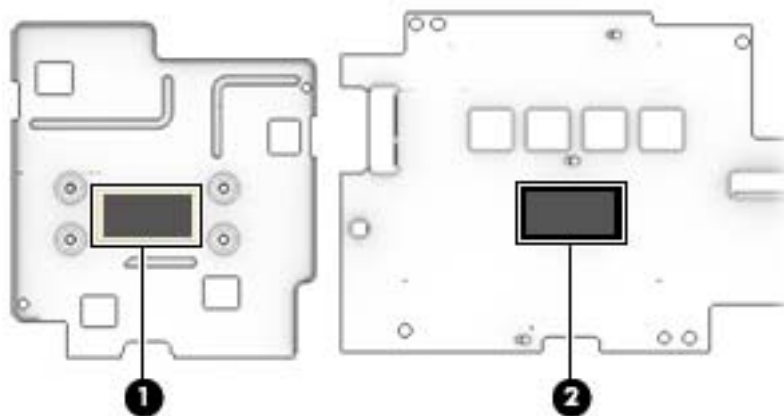


**Models with Intel Core processors:**

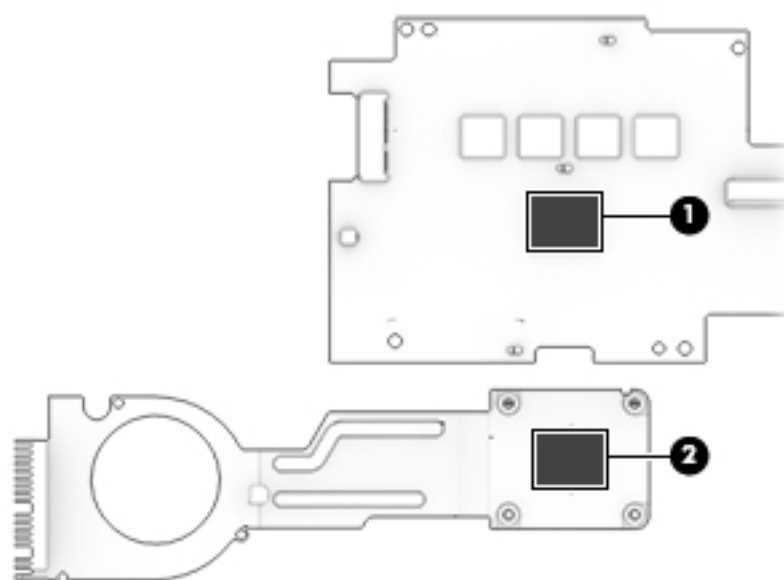


**NOTE:** The thermal material must be thoroughly cleaned from the surfaces of the heat sink and the system board components each time the heat sink is removed. Thermal paste is used on the processor (1) and the heat sink section (2) that services it

**Models with Intel Pentium or Celeron processors:**



**Models with Intel Pentium or Celeron processors:**



Reverse this procedure to install the heat sink.

## Battery

Description	Spare part number
2-cell, 32-Wh, 4.2-Ah, Li-ion battery	796355-005

Before removing the battery, follow these steps:

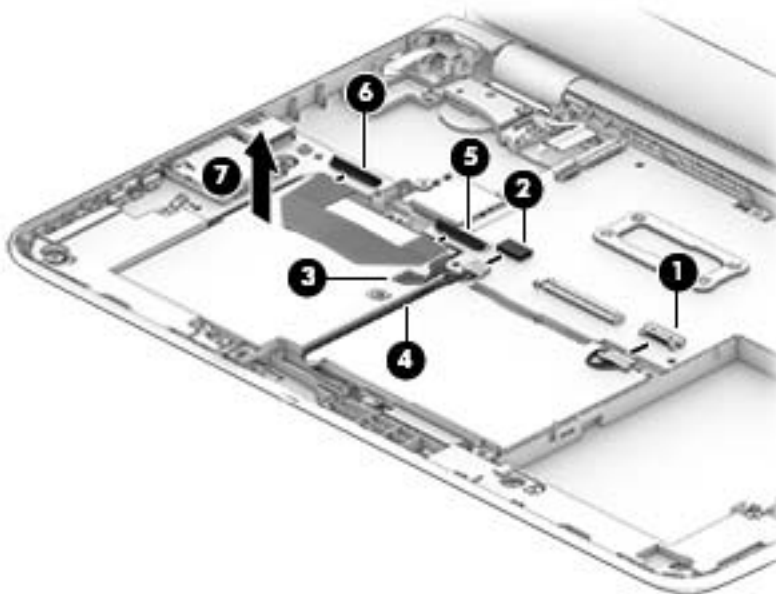
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).

Remove the battery:

**WARNING!** To reduce potential safety issues, use only the battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.

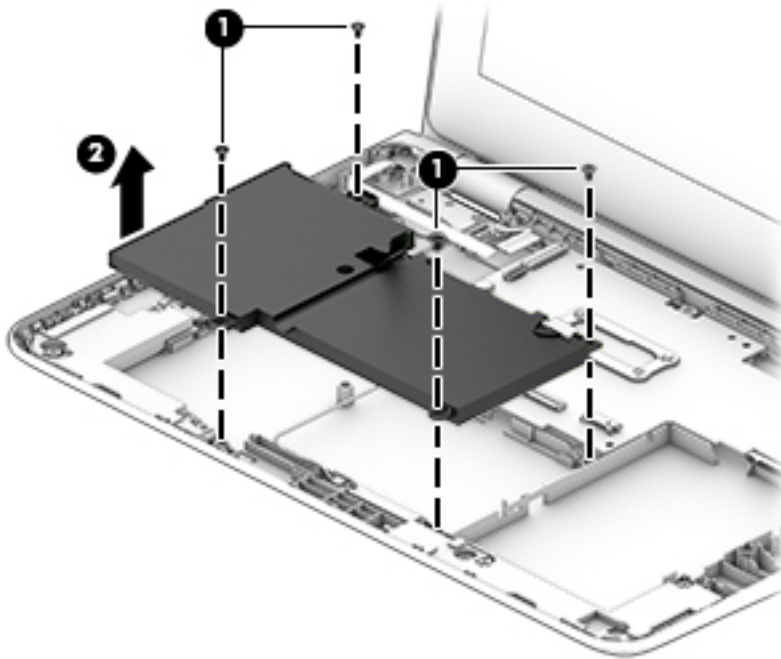
1. Disconnect the battery cable from the system board (1).
2. Disconnect the speaker cable from the system board (2), lift the tape that secures the cable to the battery (3), and remove the cable from atop the battery (4).
3. Disconnect the USB/card reader board cable from the system board (5) and the USB/card reader board (6), and then (if replacing the battery) remove the cable from atop the battery (7).

**NOTE:** If replacing the battery, be sure to attach the flat USB/card reader cable to the top of the new battery.



4. Remove the four Phillips PM2.5×4.0 screws (1) that secure the battery to the computer.

5. Remove the battery (2).



Reverse this procedure to install the battery.



## Display assembly

The display is only spared at the subcomponent level. The full hinge-up is not spared.

Before removing the display assembly, follow these steps:

1. Shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).
5. Remove the system board (see [System board on page 39](#)).

To remove the display assembly:

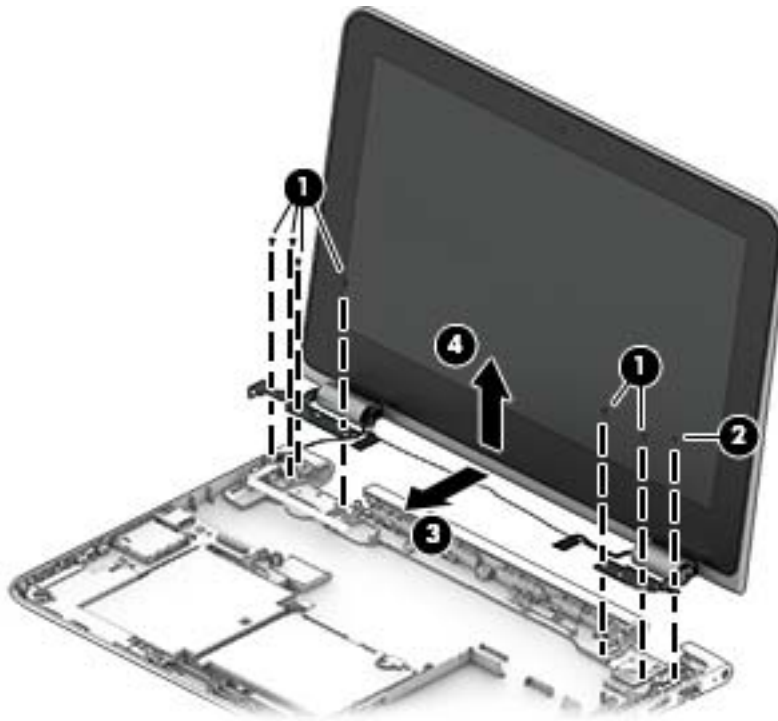
1. Remove the six Phillips PM2.5×4.0 screws **(1)** and the Phillips PM2.0×2.5 screw **(2)** that secures the display assembly to the computer.

---

**⚠ CAUTION:** Support the display assembly when removing the screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.


---

2. Pull the display into the computer to remove hinges from computer **(3)**.
3. Separate the display assembly from the computer **(4)**.



If it is necessary to replace any of the display assembly subcomponents:

1. To remove the display enclosure:

 **NOTE:** The display enclosure is available using the following spare part numbers:


809574-001 for red models

809573-001 for silver models


809575-001 for green models

816503-001 for purple models

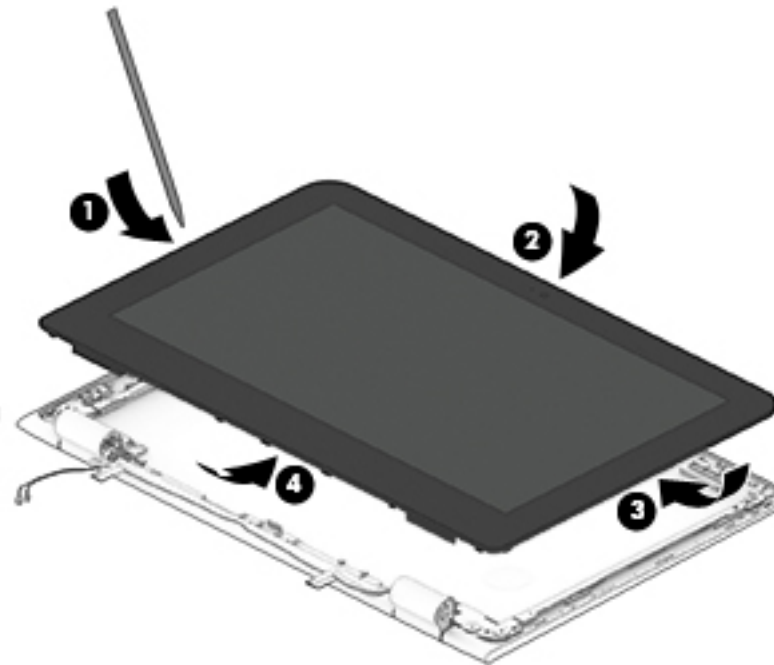
- a. Use a thin plastic tool to run along the entire seam of the display to loosen the cover from the display.

 **CAUTION:** To avoid damaging the display, be sure to only run the tool in one direction.

- b. Separate the left side (1), top (2), right side (3), and bottom (4) of the display cover from the display.

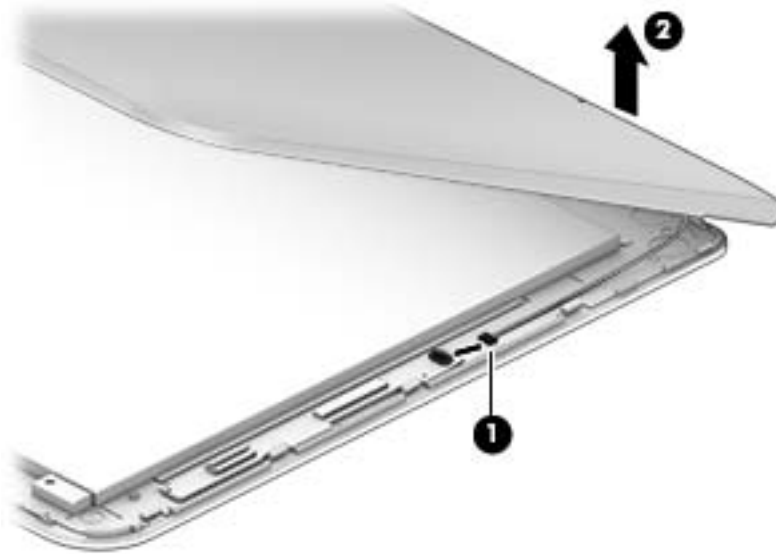
 **NOTE:** Separate the cover from display just enough to gain access to the touch control cable that routes to the connector on the board on the side of the display panel.

The raw display panel is available using spare part number 809548-001 for SVA panels and 809549-001 for UVWA panels.



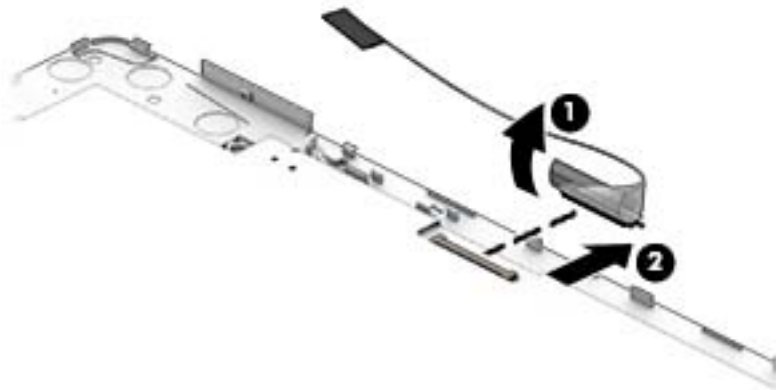
- c. Disconnect the cable from the touch control board **(1)**, and then separate the display enclosure from the display **(2)**.

Position the display enclosure next to the display panel so you can access the display cable connected to the back of the display panel.



- d. Disconnect the display cable from the back of the display panel by lifting the tape that secures the cable in the connector **(1)**, and then pull the cable out of the connector **(2)**.

The display cable is available using spare part number 809576-001.



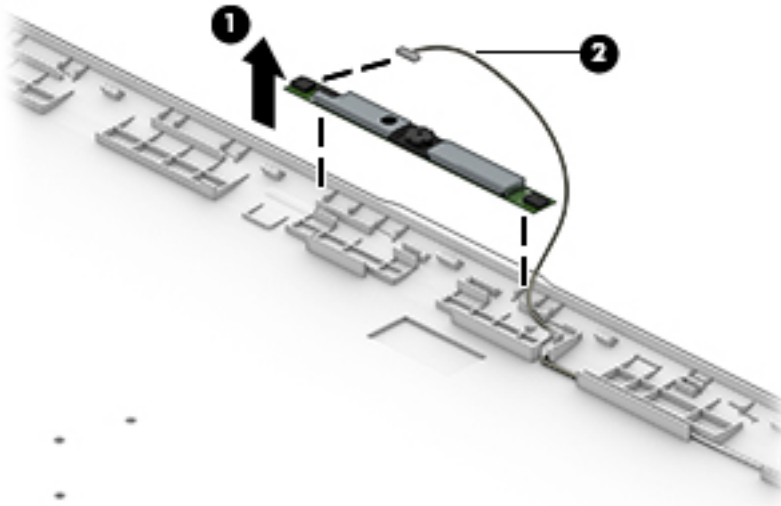
## 2. To remove the webcam module:



**NOTE:** The webcam is available using spare part number 807542-001.

- a. Lift the webcam module **(1)** enough to gain access to the cable.

- b. Disconnect the cable (2) from the module.

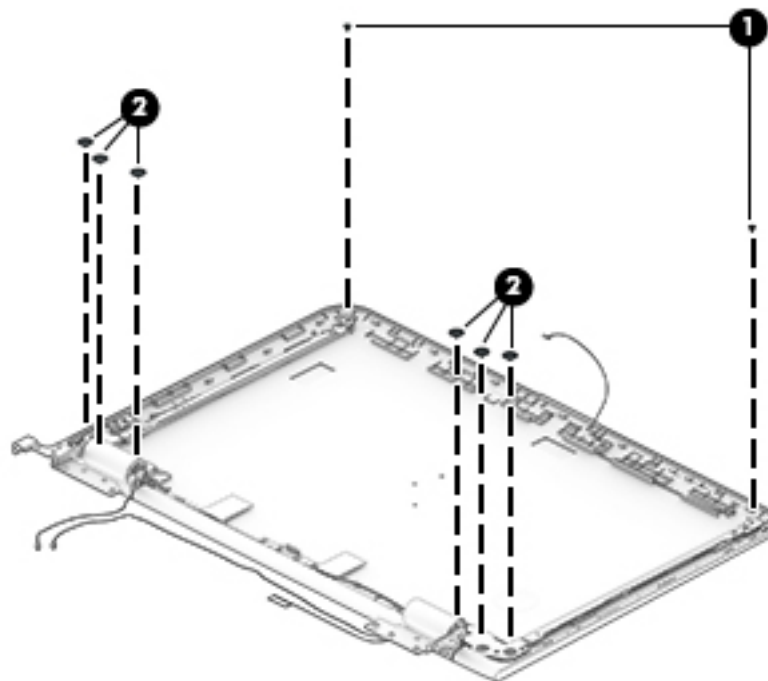


3. To remove the display hinges:

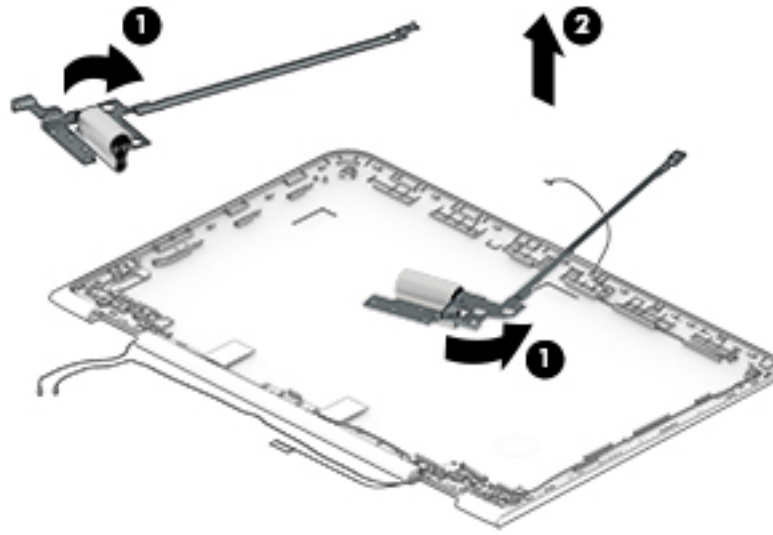


**NOTE:** The display hinges are available using spare part number 809539-001.

- a. Position the display enclosure upright.
- b. Remove the Phillips PM2.0×2.0 screw (1) from the top of each hinge and the three broadhead Phillips PM2.5×2.0 screws (2) from the bottom of each hinge that secure the hinges to the display.



- c. Rotate the top of the hinges inward so that the hinges are at an angle, **(1)**, and then remove the hinges **(2)**.

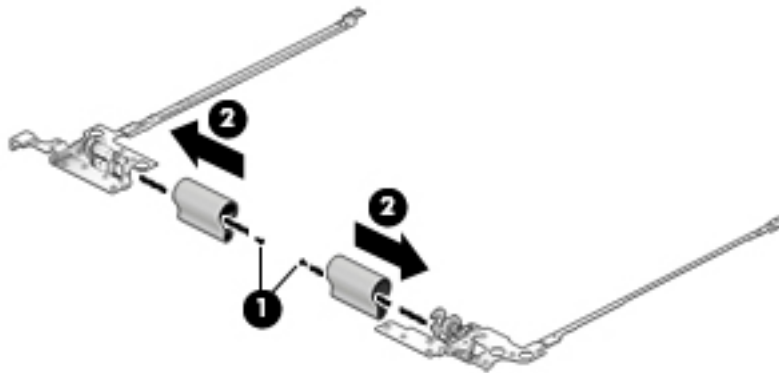


4. To remove the display hinge covers:



**NOTE:** The display hinge covers are available using spare part number 809541-001 for red models, 809540-001 for silver models, 809542-001 for green models, and 809828-001 for purple models.

- Remove the Phillips PM2.0×3.0 screw **(1)** that secures the hinge cover to the hinge.
- Separate the hinge cover from the hinge **(2)**.

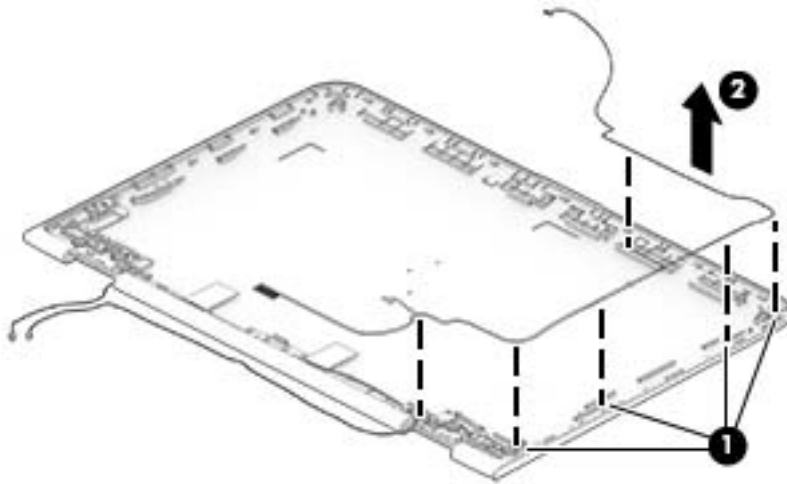


5. To remove the display cable:



**NOTE:** The display cable is available using spare part number 809576-001.

- Remove the cable from the tape and clips **(1)** that secure it to the display enclosure, and then lift the display cable from the display enclosure **(2)**.

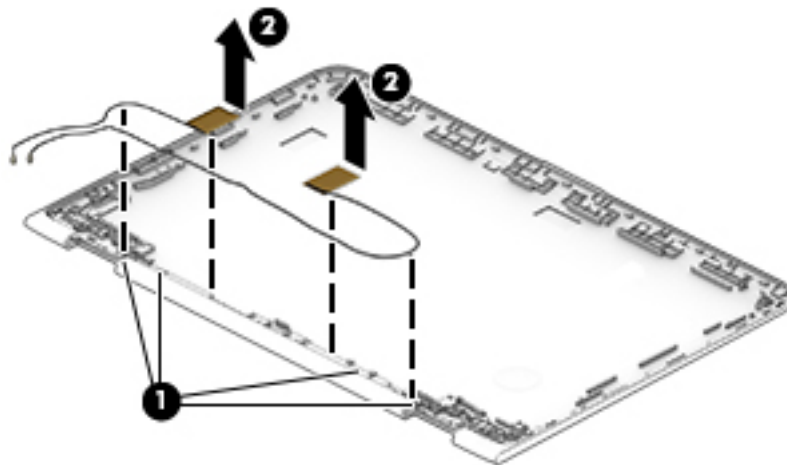


**6.** To remove the antenna cables:



**NOTE:** The antenna cables are available using spare part number 809530-001.

- ▲ Remove the cables from the tape and clips **(1)** that secure them to the display enclosure, peel the transceivers from the enclosure, and then lift the cables and transceivers from the display enclosure **(2)**.



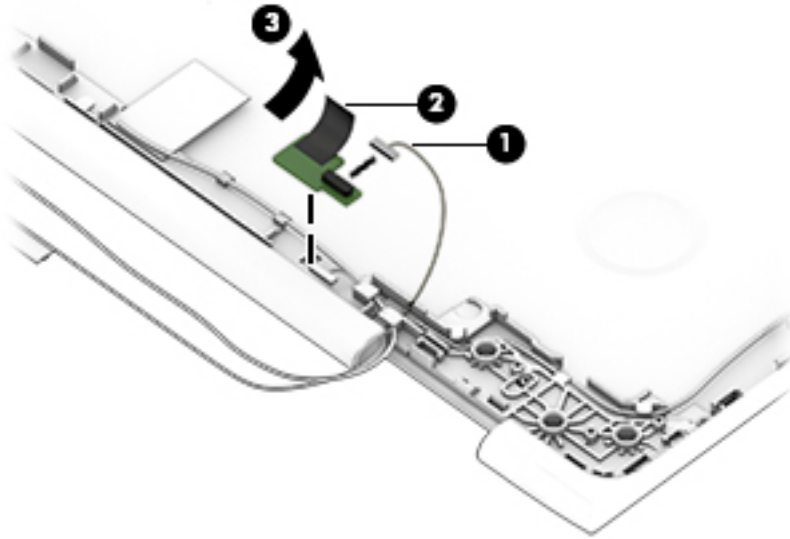
**7.** To remove the sensor board:



**NOTE:** The sensor board is available using spare part number 809547-001 on models with an Intel Core processor or 819790-001 on models with an Intel Pentium or Celeron processor.

- a. Disconnect the cable from the board **(1)**.
- b. Remove the tape that secures the board to the display **(2)**.

- c. Remove the sensor board from the display **(3)**.



Reverse this procedure to reassemble and install the display assembly.

## Power button board

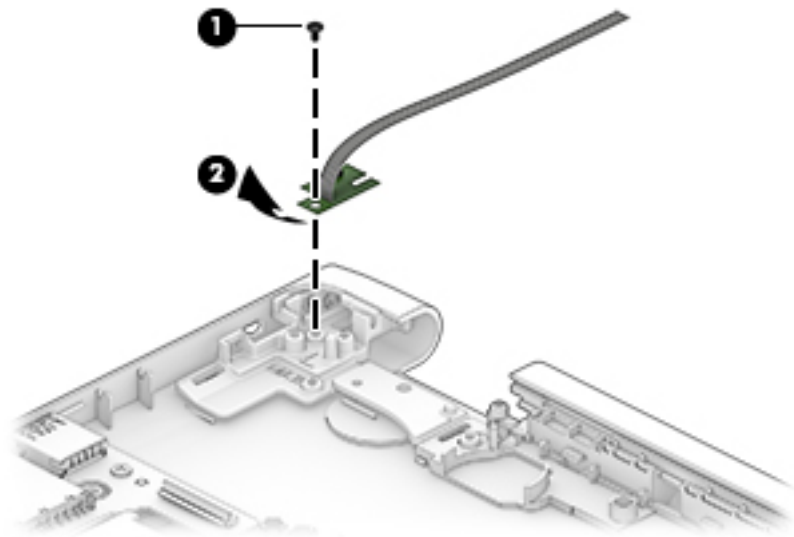
Description	Spare part number
Power button board (includes cable)	809546-001

Before removing the power button board, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).
5. Remove the system board (see [System board on page 39](#)).
6. Remove the display (see [Display assembly on page 49](#)).

Remove the power button board:

1. Remove the Phillips PM2.5×3.0 screw **(1)** that secures the power button board to the computer.
2. Remove the power button board and cable **(2)**.



Reverse this procedure to install the power button board.



## Power connector cable

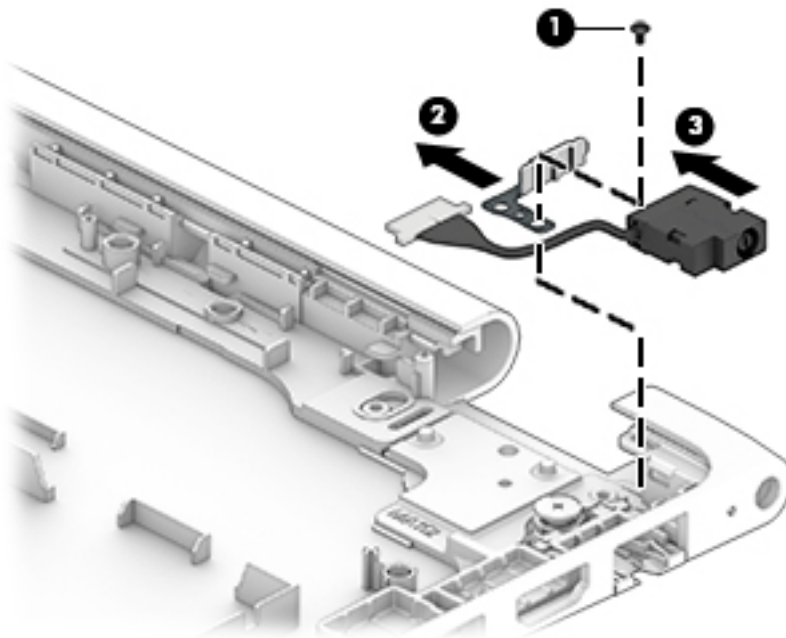
Description	Spare part number
Power connector cable	807522-001

Before removing the power connector cable, follow these steps:

1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.
4. Remove the top cover (see [Top cover on page 25](#)).
5. Remove the system board (see [System board on page 39](#)).
6. Remove the display (see [Display assembly on page 49](#)).

Remove the power connector cable:

1. Remove the Phillips PM2.0×2.0 screw (1) that secures the bracket to the computer.
2. Remove the bracket from the computer (2).
3. Pull the connector out from under the rear corner of the computer (3).



4. Remove the power connector cable.

Reverse this procedure to install the power connector cable.

---


## 6 Using Setup Utility (BIOS)

Setup Utility, or Basic Input/Output System (BIOS), controls communication between all the input and output devices on the system (such as disk drives, display, keyboard, mouse, and printer). Setup Utility (BIOS) includes settings for the types of devices installed, the startup sequence of the computer, and the amount of system and extended memory.

### Starting Setup Utility (BIOS)

---

 **CAUTION:** Use extreme care when making changes in Setup Utility (BIOS). Errors can prevent the computer from operating properly.

 **NOTE:** If your tablet has a keyboard base, connect the tablet to the keyboard base before beginning the steps in this chapter.

---

- Computers or tablets with keyboards:
  - ▲ Turn on or restart the computer, quickly press **esc**, and then press **f10**.
- Tablets without keyboards:
  1. Turn on or restart the tablet, and then quickly hold down the volume down button.
    - or -
    - Turn on or restart the tablet, and then quickly hold down the Windows button.
  2. Tap **f10**.

### Updating the BIOS

Updated versions of the BIOS may be available on the HP website.

Most BIOS updates on the HP website are packaged in compressed files called *SoftPaqs*.

Some download packages contain a file named *Readme.txt*, which contains information regarding installing and troubleshooting the file.


### Determining the BIOS version

To determine whether available BIOS updates contain later BIOS versions than the one currently installed on the computer, you need to know the version of the system BIOS that is installed.


BIOS version information (also known as *ROM date* and *System BIOS*) can be revealed from the Start screen by typing **support**, selecting the **HP Support Assistant** app, selecting **My computer**, and then selecting **System information**, or by using Setup Utility (BIOS).

1. Start Setup Utility (BIOS) (see [Starting Setup Utility \(BIOS\) on page 58](#)).
2. Select **Main**, and then make note of your BIOS version.
3. Select **Exit**, select **Exit Discarding Changes**, and then follow the on-screen instructions.

## Downloading a BIOS update

 **CAUTION:** To reduce the risk of damage to the computer or an unsuccessful installation, download and install a BIOS update only when the computer is connected to reliable external power using the AC adapter. Do not download or install a BIOS update while the computer is running on battery power, docked in an optional docking device, or connected to an optional power source. During the download and installation, follow these instructions:


- Do not disconnect power from the computer by unplugging the power cord from the AC outlet.
- Do not shut down the computer or initiate Sleep.
- Do not insert, remove, connect, or disconnect any device, cable, or cord.

 **NOTE:** If your computer is connected to a network, consult the network administrator before installing any software updates, especially system BIOS updates.

1. From the Start screen, type *support*, and then select the **HP Support Assistant** app.  
– or –  
From the Windows desktop, click the question mark icon in the taskbar area of the Windows desktop.
2. Click **Updates and tune-ups**, and then click **Check for HP updates now**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
  - a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. If the update is more recent than your BIOS, make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.
  - b. Follow the on-screen instructions to download your selection to the hard drive.  
  
If the update is more recent than your BIOS, make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.

BIOS installation procedures vary. Follow any instructions that appear on the screen after the download is complete. If no instructions appear, follow these steps:

1. From the Start screen, type *file*, and then select **File Explorer**.  
– or –  
From the Windows desktop, right-click the **Start** button, and then select **File Explorer**.
2. Click your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder on your hard drive that contains the update.
4. Double-click the file that has an .exe extension (for example, *filename.exe*).  
  
The BIOS installation begins.
5. Complete the installation by following the on-screen instructions.

 **NOTE:** After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.

## Synchronizing a tablet and keyboard (select models only)

When you attach a tablet to the keyboard and restart the computer, the BIOS checks to see if the Embedded Controller firmware on the keyboard needs to be synchronized. If so, BIOS will start the synchronization. If the synchronization is interrupted, a notification screen displays for 10 seconds before the tablet restarts and attempts to synchronize again.



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**NOTE:** The Embedded Controller firmware will synchronize **ONLY** if the tablet or keyboard battery is more than 50% charged, or if your tablet is connected to AC power.

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## 7 Using HP PC Hardware Diagnostics (UEFI)

HP PC Hardware Diagnostics is a Unified Extensible Firmware Interface (UEFI) that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs outside the operating system so that it can isolate hardware failures from issues that are caused by the operating system or other software components.

---

 **NOTE:** To start the Setup Utility, your computer must be in notebook mode and you must use the keyboard attached to your notebook. The on-screen keyboard, which displays in tablet mode, cannot access the Setup Utility.

---

To start HP PC Hardware Diagnostics (UEFI):

**1.** Start Setup Utility:

- Computers or tablets with keyboards:
  - ▲ Turn on or restart the computer, quickly press **esc**.
- Tablets without keyboards:
  - ▲ Turn on or restart the tablet, and then quickly hold down the volume down button.
  - or -
  - Turn on or restart the tablet, and then quickly hold down the Windows button.

**2.** Press or tap **f2**.

The BIOS searches 3 places for the diagnostic tools, in the following order:

**a.** Connected USB drive



**NOTE:** To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device on page 62](#).


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**b.** Hard drive

**c.** BIOS

**3.** When the diagnostic tool opens, use the keyboard arrow keys to select the type of diagnostic test you want to run, and then follow the on-screen instructions.

---

 **NOTE:** If you need to stop a diagnostic test, press or tap **esc**.

---

# Downloading HP PC Hardware Diagnostics (UEFI) to a USB device



**NOTE:** Instructions for downloading HP PC Hardware Diagnostics (UEFI) are provided in English only.

There are two options to download HP PC Hardware Diagnostics to a USB device:

**Option 1: HP PC Diagnostics homepage**— Provides access to the latest UEFI version

1. Go to <http://hp.com/go/techcenter/pcdiags>.
2. Click the UEFI **Download** link, and then select **Run**.

**Option 2: Support and Drivers pages**—Provide downloads for a specific product for earlier and later versions

1. Go to <http://www.hp.com>.
  2. Point to **Support**, located at the top of the page, and then click **Download Drivers**.
  3. In the text box, enter the product name, and then click **Go**.
- or –
- Click **Find Now** to let HP automatically detect your product.
4. Select your computer model, and then select your operating system.
  5. In the **Diagnostic** section, click **HP UEFI Support Environment**.

– or –

Click **Download**, and then select **Run**.


## 8 Backing up, restoring, and recovering

This chapter provides information about the following processes. The information in the chapter is standard procedure for most models.

- Creating recovery media and backups
- Restoring and recovering your system

For additional information, refer to Help and Support.

- ▲ From the Start screen, type `help`, and then select **Help and Support**.


 **IMPORTANT:** If you will be using F11 startup recovery or USB media recovery to recover your system, the tablet battery must have at least 70% battery power remaining before starting the recovery process.

### Creating recovery media and backups


The following methods of creating recovery media and backups are available on select models only. Choose the available method according to your computer model.

- Use HP Recovery Manager after you successfully set up the computer to create HP Recovery media. This step creates a backup of the HP Recovery partition on the computer. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced. For information on creating recovery media, see [Creating HP Recovery media \(select models only\) on page 63](#). For information on the recovery options that are available using the recovery media, see [Recovering using HP Recovery Manager on page 65](#).
- Use Windows tools to create system restore points and create backups of personal information.

For more information, see [Using Windows tools on page 64](#).

 **NOTE:** If storage is 32 GB or less, Microsoft System Restore is disabled by default.

### Creating HP Recovery media (select models only)

 **IMPORTANT:** If your computer does not list a Create recovery media option, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

HP Recovery Manager is a software program that allows you to create recovery media after you successfully set up the computer. HP Recovery media can be used to perform system recovery if the hard drive becomes corrupted. System recovery reinstalls the original operating system and the software programs installed at the factory and then configures the settings for the programs. HP Recovery media can also be used to customize the system or restore the factory image if you replace the hard drive.

- Only one set of recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.
- HP Recovery Manager examines the computer and determines the required storage capacity for the media that will be required.

- To create recovery discs, your computer must have an optical drive with DVD writer capability, and you must use only high-quality blank DVD-R, DVD+R, DVD-R DL, or DVD+R DL discs. Do not use rewritable discs such as CD±RW, DVD±RW, double-layer DVD±RW, or BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software. Or, instead, you can use a high-quality blank USB flash drive.
- If your computer does not include an integrated optical drive with DVD writer capability, but you would like to create DVD recovery media, you can use an external optical drive (purchased separately) to create recovery discs, or you can obtain recovery discs for your computer from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions. If you use an external optical drive, it must be connected directly to a USB port on the computer; the drive cannot be connected to a USB port on an external device, such as a USB hub.
- Be sure that the computer is connected to AC power before you begin creating the recovery media.
- The creation process can take an hour or more. Do not interrupt the creation process.
- If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue, and the remaining discs will be burned.

To create HP Recovery media:



**IMPORTANT:** For tablets with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps (select models only).

1. From the Start screen, type `recovery`, and then select **HP Recovery Manager**.
2. Select **Create recovery media**, and then follow the on-screen instructions.

If you ever need to recover the system, see [Recovering using HP Recovery Manager on page 65](#).

## Using Windows tools

You can create system restore points and create backups of personal information using Windows tools.



**NOTE:** If storage is 32 GB or less, Microsoft System Restore is disabled by default. For more information and steps, see Help and Support.

- ▲ From the Start screen, type `help`, and then select **Help and Support**.

## Restore and recovery

There are several options for recovering your system. Choose the method that best matches your situation and level of expertise:



**IMPORTANT:** Not all methods are available on all models.

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see Help and Support.
  - ▲ From the Start screen, type `help`, and then select **Help and Support**.
- If you need to correct a problem with a preinstalled application or driver, use the Reinstall drivers and/or applications option of HP Recovery Manager to reinstall the individual application or driver.



- ▲ From the Start screen, type `recovery`, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.
- On select models, if you want to reset your computer using a minimized image, you can choose the HP Minimized Image Recovery option from the HP Recovery partition or HP Recovery media. Minimized Image Recovery installs only drivers and hardware-enabling applications. Other applications included in the image continue to be available for installation through the Reinstall drivers and/or applications option in HP Recovery Manager.

For more information, see [Recovering using HP Recovery Manager on page 65](#).

- If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select models only) or use the HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 65](#). If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 63](#).
- On select models, if you want to recover the computer's original factory partition and content, or if you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 65](#).
- On select models, if you want to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.

For more information, see [Removing the HP Recovery partition \(select models only\) on page 67](#).

## Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media that you either created or that you obtained from support, or by using the HP Recovery partition (select models only). If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 63](#).

### What you need to know before you get started

- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this computer, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.



**IMPORTANT:** Recovery through HP Recovery Manager should be used as a final attempt to correct computer issues.

- HP Recovery media must be used if the computer hard drive fails. If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 63](#).
- To use the Factory Reset option (select models only), you must use HP Recovery media. If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 63](#).
- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.



**IMPORTANT:** HP Recovery Manager does not automatically provide backups of your personal data. Before beginning recovery, back up any personal data you want to retain.

Using HP Recovery media, you can choose from one of the following recovery options:



**NOTE:** Only the options available for your computer display when you start the recovery process.

- **System Recovery**—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.
- **Minimized Image Recovery (select models only)**—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
- **Factory Reset**—Restores the computer to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

The HP Recovery partition (select models only) allows System Recovery and Minimized Image Recovery (select models only).

## Using the HP Recovery partition (select models only)

The HP Recovery partition allows you to perform a system recovery or minimized image recovery (select models only) without the need for recovery discs or a recovery USB flash drive. This type of recovery can be used only if the hard drive is still working.

To start HP Recovery Manager from the HP Recovery partition:



**IMPORTANT:** For tablets with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps (select models only).

1. From the Start screen, type `recovery`, select **Recovery Manager**, and then select **HP Recovery Environment**.  
- or -  
Press **f11** while the computer boots, or press and hold **f11** as you press the power button.
2. Select **Troubleshoot** from the boot options menu.
3. Select **Recovery Manager**, and then follow the on-screen instructions.

## Using HP Recovery media to recover

You can use HP Recovery media to recover the original system. This method can be used if your system does not have an HP Recovery partition or if the hard drive is not working properly.

1. If possible, back up all personal files.
2. Insert the HP Recovery media, and then restart the computer.



**NOTE:** If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See [Changing the computer boot order on page 66](#).

3. Follow the on-screen instructions.

## Changing the computer boot order

If your computer does not restart in HP Recovery Manager, you can change the computer boot order, which is the order of devices listed in BIOS where the computer looks for startup information. You can change the selection for an optical drive or a USB flash drive.

To change the boot order:



**IMPORTANT:** For tablets with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps (select models only).

1. Insert the HP Recovery media.

2. Start Computer Setup:

For computers or tablets with keyboards attached:

- ▲ Turn on or restart the computer or tablet, quickly press **esc**, and then press **f9** for boot options.

For computers or tablets without keyboards attached:

- ▲ Turn on or restart the computer, quickly press the volume down button, and then tap **f9** for boot options.

- or -

Turn on or restart the computer, quickly press the Windows button, and then tap **f9** for boot options.

3. Select the optical drive or USB flash drive from which you want to boot.

4. Follow the on-screen instructions.

## Removing the HP Recovery partition (select models only)

HP Recovery Manager software allows you to remove the HP Recovery partition to free up hard drive space.



**IMPORTANT:** After you remove the HP Recovery partition, you can no longer use the Windows Refresh option or the Windows option to remove everything and reinstall Windows. In addition, you will not be able to perform System Recovery or Minimized Image Recovery from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see [Creating HP Recovery media \(select models only\) on page 63](#).

Follow these steps to remove the HP Recovery partition:

1. From the Start screen, type `recovery`, and then select **HP Recovery Manager**.
2. Select **Remove Recovery Partition**, and then follow the on-screen instructions.

# 9 Specifications

## Computer specifications

	Metric	U.S.
<b>Dimensions</b>		
Width	<b>306 mm</b>	12.13 in
Depth	<b>208 mm</b>	8.47 in
Height	<b>22.5 mm</b>	0.86 in
Weight with solid-state drive	<b>1362.9 g</b>	3.01 lbs
Weight with hard drive	<b>1462.9 g</b>	3.23 lbs
<b>Input power</b>		
Operating voltage and current	19.5 V dc @ 3.33 A – 65 W	
	19.5 V dc @ 2.31 A – 45 W	
<b>Temperature</b>		
Operating	<b>5°C to 35°C</b>	41°F to 95°F
Nonoperating	<b>-20°C to 60°C</b>	-4°F to 140°F
<b>Relative humidity</b> (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
<b>Maximum altitude</b> (unpressurized)		
Operating	<b>-15 m to 3,048 m</b>	-50 ft to 10,000 ft
Nonoperating	<b>-15 m to 12,192 m</b>	-50 ft to 40,000 ft
<b>NOTE:</b> Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

## Hard drive specifications

	1-TB, 5400-rpm*	500-GB, 5400-rpm*
<b>Dimensions</b>		
Height	7.0 mm	7.0 mm
Length	100.4 mm	100.4 mm
Width	69.9 mm	69.9 mm
Weight	110 g	110 g
<b>Interface type</b>	SATA	SATA
<b>Transfer rate</b> (synchronous, maximum)	1.2 GB/sec	1.1 GB/sec
<b>Security</b>	ATA security	ATA security
<b>Seek times</b> (typical read, including setting)		
Single track	3 ms	1.5 ms
Average (read/write)	13 ms	11/13 ms
Maximum	24 ms	22 ms
<b>Logical blocks</b>	1,953,525,168	976,773,168
<b>Disk rotational speed</b>	5400 rpm	5400 rpm
<b>Operating temperature</b>	0°C to 60°C (32°F to 140°F)	0°C to 60°C (32°F to 140°F)
*1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.		
<b>NOTE:</b> Certain restrictions and exclusions apply. Contact technical support for details.		

## M.2 solid-state drive specifications

128-GB*	
<b>Dimensions</b>	
Height	1 mm
Length	50.8 mm
Width	28.9 mm
Weight	< 10 g
<b>Interface type</b>	
ATA-7	
<b>Transfer rate</b>	
Sequential Read	Up to 160 MB/s
Random Read	Up to 128 MB/s
Sequential Write	Up to 115 MB/s
Random Write	Up to 16 MB/s
<b>Ready time, Maximum (to not busy)</b>	
2.0 s	
<b>Access times</b>	
Logical	0.1 ms
<b>Total logical sectors</b>	
117,905,264	
<b>Operating temperature</b>	
Operating	0° to 70°C (32°F to 158°F)
Non-operating	-55° to 95°C (-67°F to 203°F)
*1 GB = 1 billion bytes when referring to hard drive storage capacity. Actual accessible capacity is less.	
<b>NOTE:</b> Certain restrictions and exclusions apply. Contact technical support for details.	

## 29.5-cm (11.6-in) HD+ display specifications

	Metric	U.S.
Dimensions		
Height	20.6 cm	8.11 in
Width	28.9 cm	11.38 in
Diagonal	29.5 cm	11.6 in
Number of colors	up to 16.8 million	
Contrast ratio	200:1 (typical)	
Brightness	220 nits (typical)	
Pixel resolution		
Pitch	0.197 × 0.197 mm	
Format	HD (1366 x 768)	
Configuration	RGB vertical stripe	
Backlight	LED	
Character display	80 × 25	
Total power consumption	3.46 W	
Viewing angle	±65° horizontal, ±50° vertical (typical)	

## 10 Power cord set requirements

The wide-range input feature of the computer permits it to operate from any line voltage from 100 to 120 volts AC, or from 220 to 240 volts AC.

The 3-conductor power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries and regions must meet the requirements of the country or region where the computer is used.

### Requirements for all countries

The following requirements are applicable to all countries and regions:

- The length of the power cord set must be at least 1.0 m (3.3 ft) and no more than 2.0 m (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by the power system of each country or region.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer. Requirements for all countries 113

### Requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
The People's Republic of China	COC	5



Country/region	Accredited agency	Applicable note number
South Korea	EK	4
Sweden	CEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

1. The flexible cord must be Type H05VV-F, 3-conductor, 1.0-mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm<sup>2</sup> conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm<sup>2</sup> conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

---

# 11 Recycling

When a non-rechargeable or rechargeable battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for battery disposal.

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries. For more information about recycling programs, see the HP Web site at <http://www.hp.com/recycle>.

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